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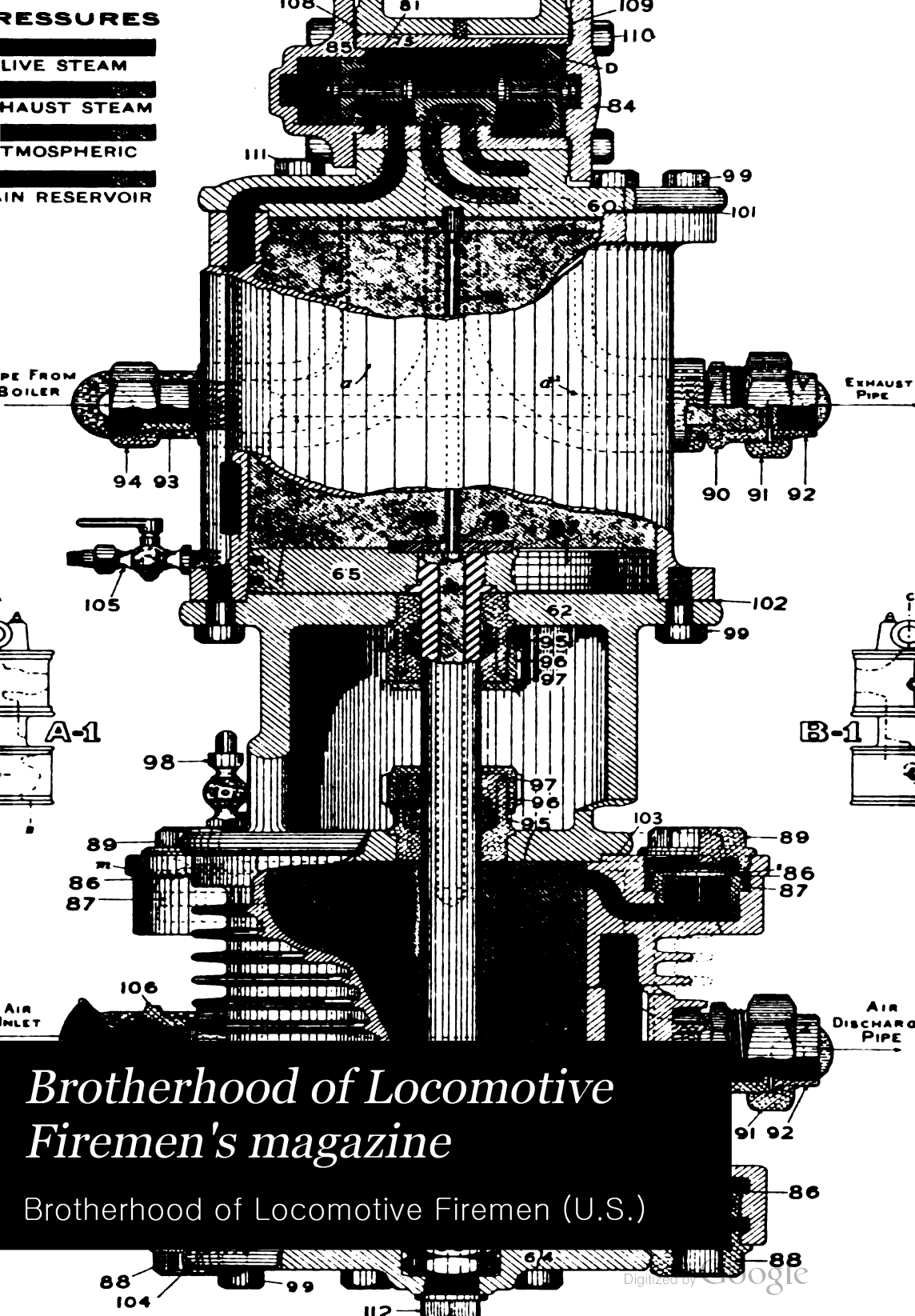
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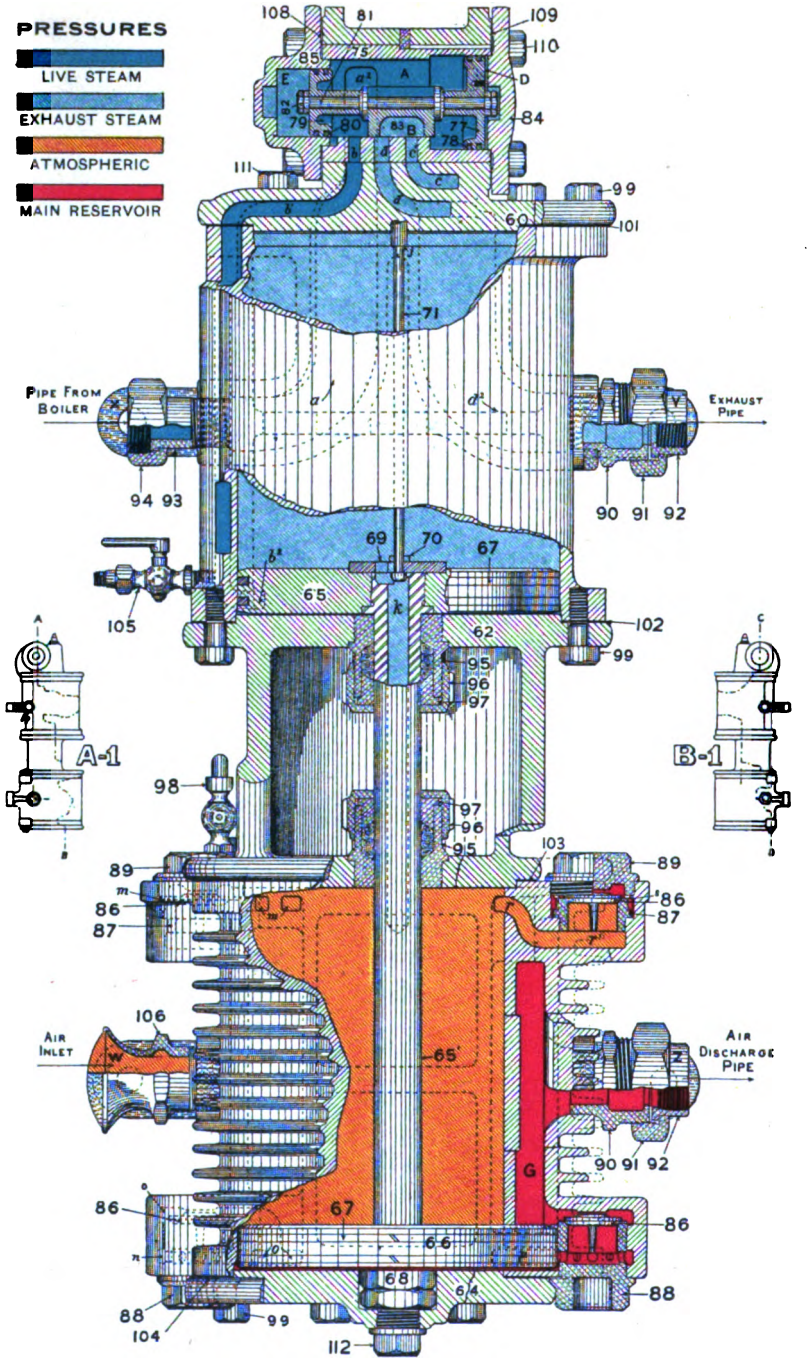
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Locomotive Firemen's Magazine Educational Charts

WESTINGHOUSE AIR BRAKE SERIES

PLATE I—NINE AND ONE-HALF INCH PUMP (Front View)

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BROTHERHOOD OF
LOCOMOTIVE
FIREMEN'S
MAGAZINE
W.S. CARTER
EDITOR & MANAGER

Vol. 34,
No. 1.

INDIANAPOLIS, IND.
January, 1903.

Locomotive Firemen's Magazine Educational Charts.

WITH this issue is commenced the publication of a series of colored sectional drawings of railway appliances. The frontispiece for each month will be one of these colored charts. The twelve issues of 1903 will probably be devoted to the Westinghouse Air Brake.

These drawings are original, from the fact that something new is presented, or at least presented in a new way. An effort will be made to introduce perspective drawing wherever practicable, in order that the charts will have something of the picturesque.

The Editor plans and lays out the work. The drawing is done by Bro. A. E. Marshall, of the MAGAZINE'S clerical force. Before a drawing is lithographed it is submitted to the manufacturers for inspection, and if errors are discovered they are corrected.

Each plate is copyrighted, and when a series is completed large charts will be published which will include all the plates of the series, with additions and revisions.

Plate I—Nine and One-half Inch Pump (Front View).

(*Westinghouse Air Brake Series.*)

Plate I is a front view of a Westinghouse 9½-inch air pump. A deviation from usual practice will be noticed in the manner of showing the piston in the air cylinder. Instead of cutting away the right side of the piston, so as to expose all of passage G, the piston is shown complete, and overlapping passage G.

The dotted lines on the small drawings, A-1 and B-1, show the manner in which this pump is cut away in order to show the sectional detail. In A-1 it is shown that the side of the pump to the left of the reader is cut down through the center of the main valve and ports to a point beneath the top head of the steam cylinder. Then, for the purpose of showing the perspective appearance of the steam cylinder, the sectional cutting ceases. Then back to near the lower end of passage b1, then forward to the center line of the piston, which has just finished the downward stroke, is again shown in section. In this plate the left side of the air cylinder is shown in perspective, except at the air inlet W.

By referring to the small drawing, B-1, we see that on the right side the main valve is cut on the center line, but only to the top cylinder head. Most of the steam cylinder is in perspective on the right side, and the right side of the piston is also shown in perspective. The air cylinder is cut on an irregular line on the right side, as is shown by the dotted line in B-1. Valves 86, near the back of the pump, are cut through their centers, while the air discharge Z is shown partially in perspective. The air piston 66 is shown in perspective and complete, by which it can be seen that passage G is *beyond* the air piston. Dotted lines indicate the full width of the air cylinder on the right side, if it had been cut through the center, instead of at the back, through passage G and valves 86, as in this drawing.

Action of Pump: In Plate I steam from the boiler enters at the connection X, and, passing around *back* of the pump, ascends through the passage *a* (indicated by dotted lines), and enters the *back* of the main valve chamber at *a*2. The steam

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thus enters A and finds itself confined by the cylindrical walls of the chamber, and at one end by the large piston 77, and at the other end by the small piston 79. It will be seen that these two unequal pistons are rigidly connected with each other by a rod 81.

What is the result of such an arrangement? Doubtlessly a greater pressure on the larger piston 77 than on the smaller piston 79. This being a fact, piston 77 is forced to the right, and drags after it piston 79.

By a peculiar form of "yoke" the rod 81 operates the slide valve 83 across a series of ports and bridges, not unlike the action of a slide valve in the steam chest of a simple engine. With the pistons and valve 83 moved to the extreme right it is apparent that the steam in chamber A will pass through the port *b*, down passage *b*1 to the ports *b*2 in the lower end of the steam cylinder, and *under* the steam piston 65. This starts the pistons in both cylinders on their upward stroke.

In other plates it will be shown that chamber E, at the left of the main valve, is in constant communication with the exhaust port *d*. The port *c*1 and passage *c* connect the cavity under valve 83 with the top end of steam cylinder. The port *d* and passage *d*1 leads from the cavity under the valve 83, down *behind* the pump, through passage *d*2 (indicated by dotted lines) to the exhaust pipe connection at Y.

Additional descriptive matter will be published with each plate, and at the completion of all the plates illustrating the Westinghouse 9½-inch pump, a detailed description of its action will be published. As these colored plates are published, should any information be desired, questions will be answered in the "Question ... department.

* * *

A Great Electrical Undertaking.

A communication from the Westinghouse Company says that a bill has recently been sanctioned by the British Parliament, which gives authority for an extensive power distribution scheme contemplating the supplying of power to the industrial region of the lower Clyde River in Scotland. The district covered by the bill includes that part of the Clyde Valley extending about ten miles on each side of the river and about twenty miles up and down stream from Glasgow. The area covered is about 700 square miles, and three generating stations will be erected to meet the demand for power. The scheme has been promoted by a group of manufacturers who desire to obtain cheap electrical power and who realize that this can be better done by joining in a common system than by each putting down his own generating plant.

This is the busiest part of industrial Scotland and contains about 1,200 works, many of which are large iron and steel works, coal mines, shipbuilding yards, and chemical works. Some of these works will alone require more power than many of the local municipalities now provide for lighting purposes, and it was easily shown that it would be inadvisable for the separate boroughs to attempt to supply an amount of power involving so large an expenditure of capital.

The three generating stations are to be built at Motherwell, Yoker and Crookston. The Motherwell station is located in the neighborhood of a large number of manufacturing works and in the center of an extensive coal field and can be connected with the adjoining line of the Caledonia Railway. It is, also, in close proximity to the river Clyde, from which water for steam and condensing purposes can be obtained.

The Yoker station is also situated on the Clyde, near the line of the Lanarkshire and Dumbartonshire Railway, and is in close proximity to a large number of shipbuilding yards, works and docks. Authority has been obtained to lay cables across the Clyde from Yoker to Renfrew, which will enable the works at Renfrew, and other works on the south side of the river, to be supplied from this station.

The third generating station will be situated near Crookston on the Glasgow & Southwestern Railway Canal line; but, owing to the arrangement allowing the company to cross the river, it will not be necessary to construct this station immediately.

The works from which the most urgent demands for power have been received are situated in the areas immediately surrounding the first two sites and it is intended, therefore, to proceed with these stations first and to install in each a plant of about 4,500-K. W. capacity. They will be so designed that they can be enlarged from time to time, as the demand requires. A radius of fourteen miles from these stations covers practically the whole district in which the company will be allowed to distribute their power, but a large proportion of the works are located within a radius of six or seven miles of the stations. When the stations are in opera-

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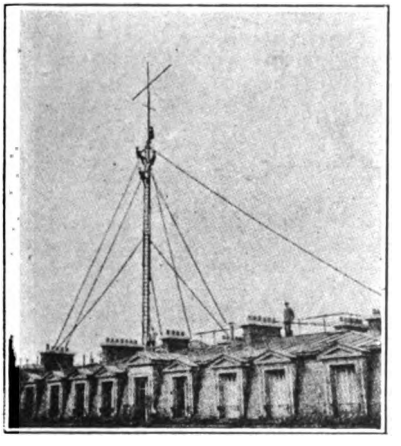
tion, they will probably be coupled together electrically, enabling them to share the loads and average up their power factors or to supplement or aid each other in any emergency. The capacities of the respective stations will ultimately be about 10,000 K. W. each at Motherwell and Yoker, and 5,000 at Crookston. By utilizing cheap sites for the stations outside of towns and near to the coal mines, it will be possible to generate power at a very low cost. Of the 710 square miles covered by the scheme, only thirteen are at present supplied with electricity. It is said that over 300 manufacturers petitioned in favor of the proposition, and it is thought that many of the remainder petitioned in favor of the rival Caledonian scheme which was turned down. The carrying out of this mammoth scheme of power distribution will place the manufacturers of Glasgow on a footing to be compared to that of American manufacturers who are so fortunate as to be within range of our cheap water powers.

The authorized capital of the Clyde Valley Electrical Power Company is $4,500,000, with borrowing powers of $1,500,000. The total cost for plant on the transmission lines is estimated at over $2,000,000. The electrical apparatus, which will comprise polyphase alternating-current generators and transformers for high voltage power distribution, rotary converters for the supplying of direct current, etc., has been contracted for with the British Westinghouse Electric and Manufacturing Company. Messrs Strain and Robertson are the engineers of the Clyde Valley Electrical Power Company. Mr. Robt. Robertson has recently spent a considerable period in the United States investigating our systems and methods of power transmission and distribution, particularly in our large cities and in such localities as Niagara, Snoqualmie Falls, Wash., Canyon Ferry, Mont., and other places.

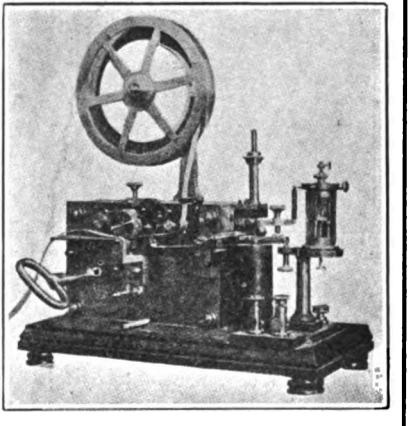
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Popular Application of Wireless Telegraphy.

The Paris correspondent of the Scientific American describes in the November 22d number of that technical journal the "Popp-Branly Aerial Telegraphy System." He says that an "aerial telegraphy project of unusual interest is now being organized in Paris. It is the intention to establish a subscriber system which will cover the whole city, and the subscribers will be kept posted as to all the important news of the day. A company has been formed for the purpose, which company is headed by Victor Popp, a prominent engineer and director of compressed air and electric lighting systems in Paris; with him is associated Dr. Edouard Branly, whose work in aerial telegraphy is too well known to be dwelt upon. This company has already installed a station at its headquarters, Place de la Madeleine, and two others at the newspaper offices of the Figaro and Journal, besides a third at the Agence Havas, near the Bourse. For some



The Mast



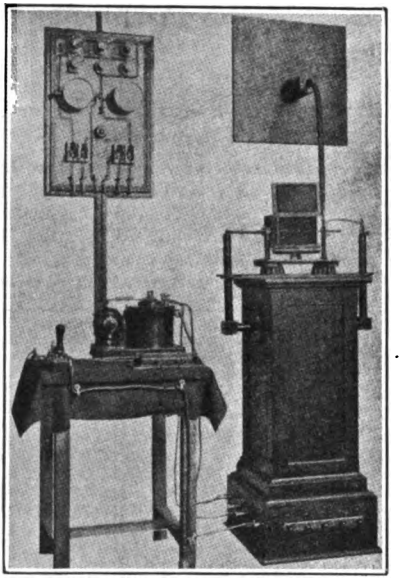
Morse Receiver and Branly Coherer

POPP-BRANLY AERIAL TELEGRAPHY

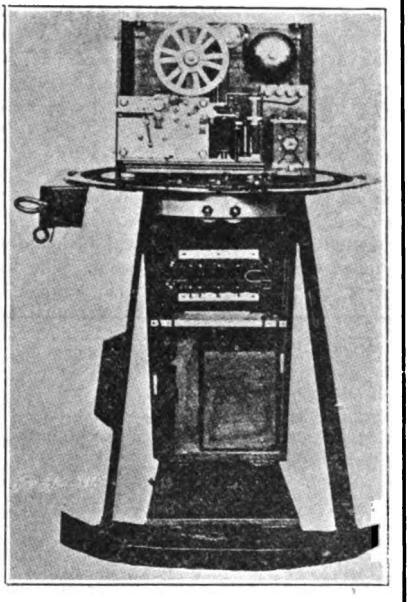
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months past messages have been regularly sent between these posts and there seems to be no question as to the practical operation of the system. Dr. Branly's newly improved instruments are used and the masts are mounted on the roofs of the buildings.

of receiving stations distributed throughout the city and suburbs. From these, cyclist messengers will carry the news to the subscribers' houses say every half hour. Thus the subscribers will be kept posted on all the leading events both of



Transmitting Post



Mounted Marine Receiver

POPP-BRANLY AERIAL TELEGRAPHY

The execution of the subscriber system will no doubt be carried out shortly. For this purpose a main transmitting station will be established in a central locality, perhaps near the Bourse. This post will have ample telegraph and telephone facilities for receiving the news of all the important events of the day. As the news is received, the central post will transmit it in turn by aerial telegraphy to a series

home and foreign news, stock quotations, markets, etc. The relatively small cost will place the system within the means of many persons. The system will be especially valuable for hotels, clubs, cafes, etc., which are to have bulletin boards for posting the news. The utility of such a system will be at once apparent, for it will greatly further the business interests of the city."

Railway Technical Press

The Time Element in Coal Consumption.

It is now pretty generally admitted that coal measured out to an engine by volume, and spoken of as "tons," is by no manner of means equal to what would be dealt out if weighed properly in a balancing hopper. Weighed tons of coal are the only tons, the measured so-called tons may really be above or below their nominal value. The candid admission of this fact has induced many of our leading roads to adopt the weighing, as against the guessing, method of coal handling. Acting on the admission of the fact makes for accuracy.

Experiment has proved that, roughly speaking, it costs twice as much to haul a train at the rate of 60 miles per hour

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as it does to pull the same train at 30 miles per hour. Even the most skeptical will probably admit that the cost of producing high speed is greater than that required for the maintenance of a moderate rate of travel, even if they dispute about the figures. In the item of cost, for any speed, the amount of fuel burned practically plays the most important part.

We have, in the science of railroading, come to the point where we deem it essential to know the actual amount of coal burned, and we know that the faster we travel the more coal we will burn, yet in the matter of ton-mile statistics we have not yet made any attempt to connect the time element with the coal consumed. An example will show this.

A and B are two passenger men running sister engines on the same division. As to condition, the engines possess about equal amounts of "scrapheapness," yet are doing good work. The division is 125 miles long and the trains weigh, say, 250 tons. One train runs each way every day, and the schedule time is 3 hours. When everything goes as it should both engines make 31,250 ton miles in the allotted time, and they burn practically equal amounts of coal, which has been weighed out to them. At the end of the month the amount of coal used is divided by the ton miles made, and the result is the amount of coal used to make one ton mile. From that, the cost per ton mile, as far as coal is concerned, is easily computed.

If A pulls more cars in the month he makes more ton miles to divide into his increased coal figures, and his cost per ton mile may not be greater than that of B, who has gone along steadily in the old way. This is all "plain sailing," because an increase in the coal burned is offset by more ton miles made.



INTERIOR OF DOPPERSBERG STATION, ELBERFIELD SUSPENDED ELECTRIC RAILWAY

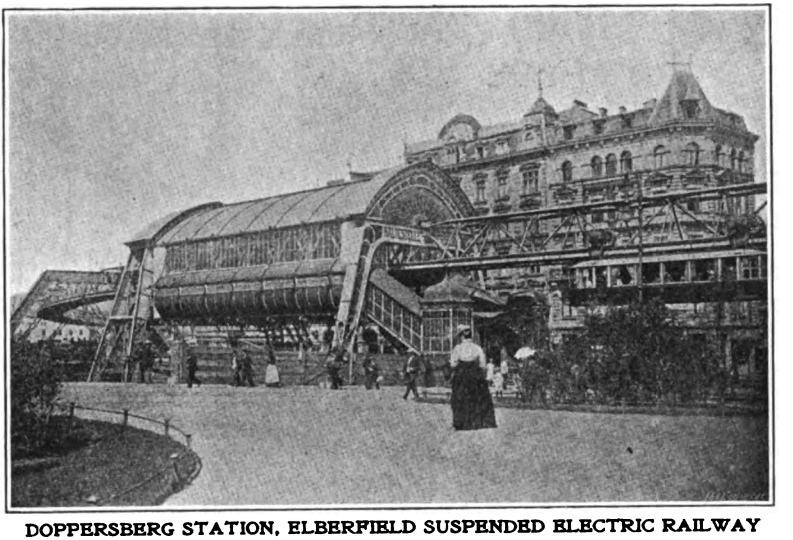
Suppose now that A and B pull trains of equal weight for a month, but B has been making up time and A has not. B ran over the division, let us say, in 2 hours and 45 minutes, whenever he got the train 15 minutes late. He made the same ton miles as A did, but he burned more coal to do it, because he was running faster. The company's higher officials may be fairly overjoyed that B makes up time every day or two, but B is in a new position now. His performance will be figured up by a clerk with pen and ink, who shows no emotions of gladness and has not the power to praise or blame. This man finds that A and B

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made the same number of ton miles, but B has burned more coal. B has, therefore, apparently cost the company more per ton miles run than A did, and it is so recorded. B knows it is wrong, so does the man with the pen and ink, if he stops to investigate, but there is no provision made for putting B where he has a perfect right to stand. It was all right to burn more coal when more ton miles were shown, because both increased together, and thus gave A the chance to keep his average as it should be. When B burned more coal making up time, without increasing his ton miles, he looked like an expensive man when the searchlight was turned on him.

If B could get his company to consider the time element, he might save his reputation. When everything else is normal 31,250 ton miles are made in 3 hours, and neglecting fractions, 10,417 ton miles would be made each hour. But B made the total ton miles in 2¾ hours, which is at the rate of 11,363 tons miles per hour, and that is 946 ton miles per hour more than A. So figured, ton mileage comes up as coal consumption increases, just as when A pulled heavier trains and burned more coal. If it was fair to keep A's average right, it is only fair to do the same for B. The time element when introduced does not injure either man, if both make the same time with heavy or light trains, but with equal trains the man who makes up time is clearly entitled to have that point considered. In fact, the science of mathematics is not able to give a correct result without it.

Some people may regard all this as a needless complication, and point to the man who guessed at the floor measurements of a box car and assumed its height, and then figured out the cubic contents to five places of decimals, as an example of wasted energy. The cases, however are not parallel. Whether it be complicated or plain, whether the extra work looks inviting or not, the fact remains that if coal burned represents work done, as it should do, the time element can not be overlooked in calculations like these without vitiating the result, and doing an injustice to some one.—Railway and Locomotive Engineering.



DOPPERSBERG STATION, ELBERFIELD SUSPENDED ELECTRIC RAILWAY

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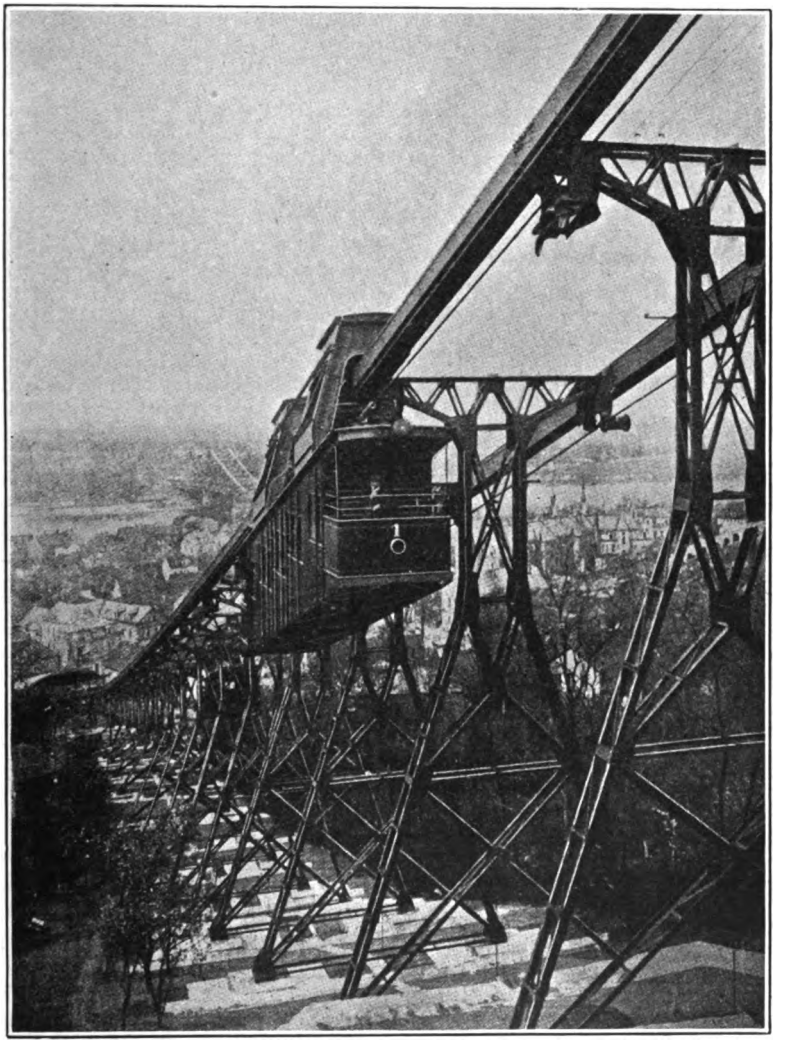
Liquid Fuel for Steamers.

According to recent English exchanges the Red Star liner "Kensington" has been ordered to the Tyne, where she will be fitted with patent oil-burning furnaces by the Wallsend Slipway and Engineering Company, Limited. Whereas the previous vessels converted into oil burners by this company have been tank steamers, the "Kensington" is a large Atlantic trader, and will be the first vessel of her type that the Wallsend firm has adapted to oil-burning.—Journal of Franklin Institute.

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Wireless Telegraphy.

There would seem to be a number of circumstances where wireless telegraphy could be put to a useful and practical test without replacing or even competing with the methods at present in use. One method of telegraphing to moving trains, by means of a wire stretched parallel to the road, was tried, but evidently it was not found altogether successful, and was soon discarded. Why should not some of these methods of wireless telegraphy be tried? The difficulties do not seem great,



CAR AND STRUCTURE, LOESCHWITZ SUSPENDED CABLE RAILWAY.

of these seems worthy of examination. With the usual block system of operating railroads, there is no way of reaching a train after it has left one station until it reaches the next. Some years ago a while the value of the experience gained would be enormous. If the application were found to be successful, the gain to the company and to the general public in the additional safety secured would be

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inestimable. The prevention of one serious accident would repay, in the saving of confidence and money, an enormous expenditure for experimental work. There would be no need of transmitting orders to the train, though there would probably be little difficulty in doing so. The simple lighting of a lamp in the engine cab would suffice to warn the engineer of danger. Today most well equipped trains already carry an electric installation, which could furnish the necessary power on the train, and the additional apparatus required. The proposition would seem worthy of more careful consideration by the railroad companies.—Dispatchers' Bulletin.

* * *

A New Block System.

Mr. Frank W. Prentice of Pittsburg, a railway telegraph operator, has devised a new method of blocking trains, which he calls the Hertzin wave block system, and which it is understood, is about to be given a practical test on the Baltimore & Ohio road. The manner in which the apparatus works is described as follows: A galvanized wire is run along the entire length of the tracks 6 inches from, and on a level with, one of the rails. The wire is mounted upon pins set in the ties 10 feet apart. An apparatus for generating the Hertzin waves is placed upon the rear of each train, connection being made with the wire by an insulated conductor and a metal brush which at all times is resting upon the wire. One of the devices is also placed on the engine. When a first section wishes to notify a second section that a stop will be or has been made, a lever on the transmitting apparatus is turned. This generates a Hertzin wave of five seconds duration, and a wave is sent out every five seconds along the wire in both directions. An approaching train when within one-half mile of the preceding train will have the receiving apparatus on the engine set in operation. This is attached to a bell and also the throttle. Connection with the cab is had by means of a metal brush placed on the pilot. The apparatus is said to be comparatively inexpensive. — Dispatchers' Bulletin.

Railway Club Proceedings

Effect of Dirt Entering Train Pipe.

A. B. BROWN: The entrance to the train pipe of matter of this character has always been a source of much annoyance, but the advent of long air-brake trains and heavy capacity cars makes its presence now even more objectionable. As of old, the evil effects are clogging the strainers which are intended to cleanse the air before it enters the triple valve, and the feed ports also become obstructed. Of course, the result of a partial or complete stoppage of the strainer in the train, regardless of its length, is the liability of brake refusing to release upon that car under some conditions of road service. The longer the train, however, the more susceptible that car would be to cause trouble on account of the greater train line volume.

If a brake refuses to release at rear end when engineer is starting a long train of cars, the draft rigging will either be weakened or damaged entirely, or else wheels might be slid a sufficient distance to flatten same.

Regarding the complete or partial stoppage of the feed ports in triple valves: while this irregularity also occurred on light capacity cars, yet its influence in decreasing the braking effort was not nearly so noticeable as upon heavy capacity cars, for the reason that such a vast amount of braking must be done in order to handle a train of heavy capacity cars on a grade with perfect safety. There is no doubt but that a large part of the dirt which causes the afore-mentioned trouble, as is well known, enters the train pipe via the hose at the end of car. This, perhaps, would not occur to such an extent if train pipe clamps were fastened securely. When clamps are loose, train pipe drops down and hose is enabled to gather up foreign matter while dragging along the ties.

Much of this trouble is also caused by pipes on new cars and engines not being blown out properly after bending, at the car or locomotive works. At some shops, white lead, or red lead, issued in such quantities that parts of same work back into the strainer, etc., causing the trouble before referred to.

In closing, the writer feels that he can do little better than to submit for your

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consideration the recommendations of the Air Brake Association, as to the means of overcoming the trouble suggested by the heading of this paper, which are as follows:

1. To couple properly all hose not in use to a well constructed dummy coupling, located at end of car so that hose will have a graceful sweep.

2. Permit no air to leave last main reservoir on locomotive at a higher temperature than the atmosphere. This principle to be followed out also in connection with shop and yard testing plants.

3. That the scale and fins in all new pipe work for air brakes on cars and engines be loosened by hammering, and pipes blown out thoroughly with steam, care being exercised also to prevent white lead or anything of that character from gaining access to inside of pipes.

4. When about to make a coupling, that train men and inspectors be required to blow out hose by opening the angle cock before the hose is finally united, even if the cars were only parted for a short time.

5. Main reservoirs should be thoroughly drained after each trip.—New England Railway Club, Oct. 14, 1902.



Momentum of Moving Train.

E. G. DESOE: Mr. P. H. Dudley, in his report of trials on freight-train brakes at Karner, N. Y., in 1892, says:

"While all railroad men know that trains must run some distance for the locomotives to work up the speed, it is doubtful if we fully realize the energy required for the speed of the heavy and fast trains of to-day, then to be destroyed in stopping them. The following table shows the 'velocity heads' (so aptly named by Mr. A. M. Wellington), or the heights in feet a body must fall to acquire the velocity in miles per hour.

Miles Per Hour.	*Velocity Head.*	*Miles Per Hour.*	*Velocity Head.*
0	.000	45	67.702
5	.836	50	83.584
10	3.343	55	101,136
15	7.522	60	120.360
20	13.373	70	163,824
25	20.896	80	213,972
30	30.097	90	270.808
35	40.956	100	334.336
40	53.493		

While the formulæ for calculating the energy of moving bodies are of course well known, and to be found in Mechanics, yet it is believed the table and a few simple explanations will be of service to those who must practically deal with such vast amounts of energy in the movement of trains."

One pound falling one foot stores up a definite amount of energy, which is measured as one foot-pound, and before it can be stopped will do one foot-pound of work. To give one pound a final velocity of ten miles per hour, we see from the table it must be raised 3.34 feet from the ground requiring 3.34 foot-pounds of work to do it, and it can readily be seen it would give out that amount of work in falling.

If we wish to give the one pound a velocity of ten miles per hour in translation, as on a railroad track, 3.34 foot-pounds of work must also be expended upon it for the velocity head of ten miles per hour.

In this case it might require a run of many feet before a speed of ten miles would be attained, while for the higher speeds for trains it would be miles. The same would be true of any other weight, as for example, a loaded grain train of a total gross weight of 3,000,000 pounds running at 25 miles per hour (not uncommon on your line) would require and have stored in the train an amount of energy greater than can be imparted to a projectile by the largest of modern guns. Three million pounds multiplied by 20, 896, velocity head, equals 62,688,000 foot-pounds, the same amount which would be required to lift the entire train 20.896 feet above the track. This vast amount of energy must be supplied by the locomotive besides overcoming all other train resistances, of friction, air, grades and curves, and requires a long run to do it, and it then requires distance and very efficient brakes to destroy the energy in a harmless way and stop the train.

I calculated, from the table referred to, that the foot-pounds of energy to be destroyed in a passenger train of 500 tons, running at the rate of 70 miles per hour, would be 163,824,000, the same amount which would be required to lift the entire train 163.824 feet.—New England Railroad Club, Oct. 14, 1902.



Locomotive Lubrication.

MR. ROESCH: When we speak of lubricating any bearing, be it a journal, valve, or cylinder, we mean that we separate the two bearing surfaces by means of a film of oil, or other lubricant. Oils consist of animal, vegetable and mineral, differing in the form of the globules, the viscosity and specific gravity. It is by

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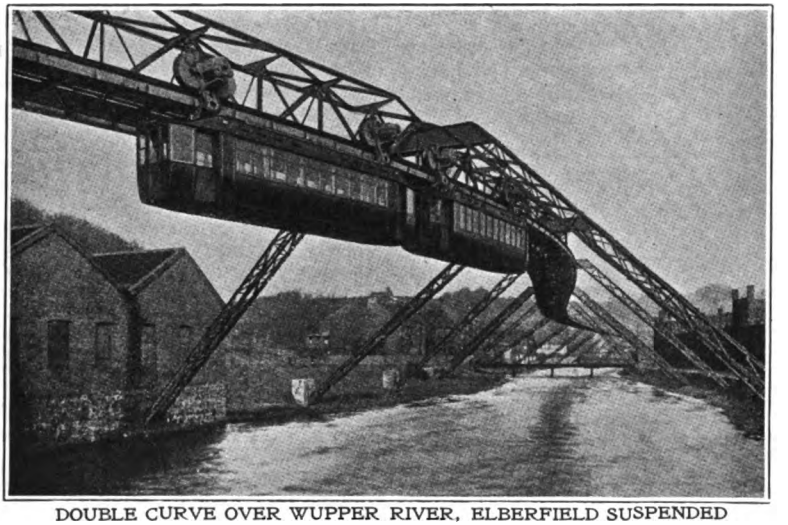
means of the minute globules of which the oil is composed that bearings are kept from coming in contact or are lubricated. In other words, by means of oil, we insert a layer of infinitesimal roller bearings between two rubbing surfaces, and so reduce friction to a minimum. Once these globules become broken, the oil loses its value as a lubricant, as it is then changed from an oil into a gas or vapor. This change can be produced by both heat or concussion. In locomotive practice it is usually caused by heat. Therefore, whenever two bearing surfaces are raised above the temperature of the flash point of the oil used, this oil is no longer of any benefit as a lubricant, and might as well be poured on the ground, as on the hot box, for all the good it will do.

In a case of this kind, if no other oil of a higher flash point is available, such as valve oil, the only correct remedy to apply is to stop, cool off the bearing to a safe margin below the flashing point of the oil, and repack the same. The flash point of an ordinary hydro-carbon engine oil is about 180 degrees Fahrenheit. The temperature of the human body is about 98 degrees Fahrenheit. Therefore, only heat above 98 degrees Fahrenheit is manifest to the touch as heat, any temperature below this feeling cool. If a journal, then, feels uncomfortably hot to the touch, it is time to look after the packing.

I. I. Redwood, an accepted authority, in his "Lubricants, Oils and Greases," says: "It is of great importance to remember that the higher the temperature the less is the lubricating power of any lubricant, and, consequently, if we have an efficient lubricant under normal conditions, it may be totally useless for the purpose of reducing the friction of a bearing that has become suddenly heated, due to any of the causes that lead to such 'engineers' annoyances.' If possible, do not allow a bearing to become heated—by giving it proper attention—but if it does, do not waste time and material by applying its lubricant, but, rather, go to work and remove the cause of the trouble and allow the bearing to cool before trying to start again."

Again, speaking of lubricating cylinders where high steam pressures are used, he says: "A mineral oil of low specific gravity and flash point must not be used, as its lubricating power will be entirely inadequate. Nothing but a high-grade cylinder oil should be used for steam cylinder lubrication, and the flash point should not be lower than 400 degrees Fahrenheit."

At the time this was written a steam pressure of 210 pounds was practically unknown; therefore, we must qualify Mr. Redwood's statement by saying, under no condition should a valve or cylinder oil be used whose flash point is not at least



DOUBLE CURVE OVER WUPPER RIVER, ELBERFIELD SUSPENDED ELECTRIC RAILWAY

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100 degrees Fahrenheit higher than the temperature of the water in the boiler. * * *

Some years ago Mr. Charles Miller, of the Galena Oil Company, realizing the vast amount of money lost to railroads through the negligence, carelessness or ignorance on the part of the engineers in the use of oil, proposed making a schedule, or, in other words, fixing a limit on the quantity of oil to be used per mile run, and with the aid of competent instructors to teach enginemen economy in its use. The efforts of Mr. Miller resulted in a saving of hundreds of dollars to the railroads.

The principles introduced by him have since been carried out by the Traveling Engineers' Association, the spirit of emulation waxing so strong as to cause all to try to reach the limits as set by him, and in many cases to exceed him.

The point where true economy ceases and loss begins was entirely lost sight of in the effort to produce a set of fancy figures, which to the operating officials no doubt looked like a vast saving of dollars and cents, as represented by oil, but to the mechanical man often meant a direct increase of maintenance expense in cut journals, valves, valve seats and cylinders. Yet he dared not complain, as high mileage per pint of oil was the fad, and every fad must run its course. If the mileage of one road fell below that of its neighbors, the low man suffered by comparison.

No truer aphorism was ever uttered than "Comparisons are odious." No true comparison on locomotive oil mileage can be made between any two railroads, even though they run practically parallel, unless *all* conditions are absolutely similar. For instance, an engine foaming, working water, or wet steam, requires more valve oil. Foaming is caused by impure water, or lack of boiler washing. In this country especially you may dig two wells within ten feet of each other, and yet obtain different water from each. You may get bad water, while your neighbor gets good. That's count one against comparisons.

You may try to run your engines 1,000 miles between washings, while your neighbor runs his but 500. This is count two.

You may buy an inferior grade of valve oil, while your neighbor gets the best. Count three.

Let us look at the engine oil proposition. Nothing will heat a driving journal quicker than a stuck wedge—or rather a stuck driving box; there is no such thing as a stuck wedge. The heating of the driving box when stuck is due to the succession of sharp blows delivered by the journal. Very rough track will cause the same hammer blows and heating. Consequently, if your engines run over light iron and rough track, while your neighbor is more favored, you will have more hot boxes, and consequently use more oil. Count four against comparisons.

We might carry this to infinitude. To speak of ballast, dust, ash pans, etc., is hardly necessary. We simply desired to show why comparisons are often unjust. Not that we disapprove of comparisons entirely; far from it. It is a good prod.

The point desired to make is: Has not the spirit of emulation and comparison carried us too far? Have we not, in our endeavors to keep up our oil records, lost sight of the fact that our power is gradually growing larger and heavier, and that our steam pressure is increasing in the same ratio? Does this not mean more frictional area to lubricate, higher journal and piston speeds in one case, and an increased temperature with its resultant partial vaporization in the other? * * *

We can still run our engines on a limited quantity of oil if we care only to produce a fancy oil sheet, but if we desire true economy we must take all factors into consideration—speed, weight and pressure—or we save at the spigot to waste at the bung.

With all modern appliances it costs about $20 to drop one pair of drivers, turn the journals and refit the boxes. This $20 would buy about seventy gallons of engine oil, or enough to oil the entire engine two months, making 150 miles per day. It will take two days to do this work. Now, if the engine should happen to be laid up for this during the busy season, when every ounce of power is in demand, and a further loss to the company, estimating the earning capacity of the engine at $200 per day, would be $400, or enough to pay for oiling the engine for four years.

To bore and bush the cylinder of a twenty-two by twenty-eight-inch engine costs about $68. At 50 cents per gallon this would purchase 136 gallons of valve oil, or enough to oil the engine 392 days, making 150 miles per day, and but fifty miles per point of valve oil. It takes three days to bore and bush a cylinder. At $200 per day earning capacity, this would, in busy times, result in a further loss of $600, or enough to buy 1,200 gal-

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lons of valve oil, which would oil the engine 3,200 days, or nearly ten years. To reverse the proposition: If you were to cut the oil supply to its lowest limit, it would take four years to save enough on engine oil to pay for one cut journal, and ten years on valve oil to pay for one cut cylinder.

Of course, we can not claim that all cut journals or cylinders are due to mileage limit per pint of oil being set too high, as both have been known to occur where the oil allowance was very liberal. Yet, on the other hand, it is hard to believe that a perfectly lubricated journal or cylinder will cut, unless some abrasive finds its way between the bearings.

care to take the time to examine the waste in the cellars we can at least make sure that it is oiled by injecting, say, one gill of engine oil into each cellar with a squirt gun before the engine goes out.

The cost of packing the average driving box cellar is: Oil, 15 cents; wool waste, 9 cents; labor, 17 cents; equals 41 cents.

For a Consolidation engine the extra oil injected into the cellars would cost about ten cents per trip, and, I believe, would cut down the hot boxes and failures fully 50 per cent. You could oil thirty-two boxes for the cost of packing one.

Cut cylinders are caused by either high steam temperature, causing a partial



ELBERFIELD SUSPENDED ELECTRIC RAILWAY
Illustrations from London Engineer

What, then, would cut a journal? Eliminating all heating due to abrasives, we have heating due to mechanical errors of construction, to quality of oil furnished, or to method of applying same.

We know that the most successful way to lubricate a journal is by means of capillary attraction, or, in other words, from the saturated waste in the cellar.

We also know that a journal unduly heated will require many times as much oil as one running cold. It is the extra oil put on our hot boxes that ruins our oil records. Would we not save oil and money by using an ounce of prevention? The car man examines the journal packing and oils it when dry. If we don't

vaporization of the oil; high piston speed, drifting, with its attendant friction; imperfect distribution of the oil, or inferior quality of same; or a combination of any or all of these evils.

It will be noticed, however, that excessive cylinder wear usually takes place when cylinders are new or newly bored. We frequently find it almost impossible to produce a smooth surface or glaze within the cylinder.

Would this not seem to indicate that the trouble is due to the porosity of the iron, and the oil being fed in such limited quantities that the drops are absorbed by the iron, instead of remaining on the surface to act as a lubricant?

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If these conclusions are correct, would it not be advisable to warm the cylinders of a new engine, or newly-bored cylinders, and cover the walls with a thick coat of tallow, so as to fill all pores?

We are told to limit the feed of lubricator to five drops per minute. To show the inconsistency of this method of lubricating, we will assume that two engines of similar proportions are sent out—one on fast freight, thirty miles per hour; one on local, ten miles per hour.

The first engine would, then, receive 100 drops of oil in ten miles, while the second received 300 drops. Yet in the first case the piston speed is 705 feet per minute, while in the latter but 235 feet.

This looks to a man from Missouri as though one engine was either getting too much oil or the other not enough.

But we will drop wear and tear to machinery entirely, and see how deficient lubrication affects operating economy in other ways.

We have here two sets of indicator cards, showing the difference in effective work performed by the locomotive with valves perfectly lubricated and with valves but partially oiled.



Fig. 1. M. E. P.=48.5 lb.

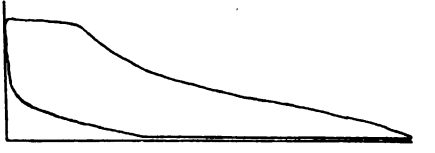


Fig. 3. M. E. P.=70.16 lb. Normal Card.

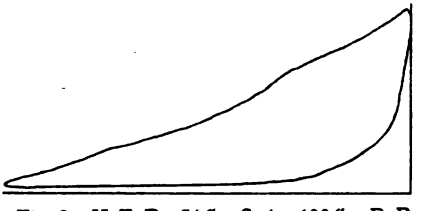


Fig. 2. M. E. P.=54 lb. Spring 100 lb. R. P. M.=105. Steam Pressure 195 lb. Piston Valve.



Fig. 4. M. E. P.=59.44 lb. Spring 150 lb. R. P. M.=121.5. Steam Pressure 210 lb. Allen-Richardson Valve. Insufficient Lubrication.

Figures 1 and 2 were taken from a twenty-two-inch by twenty-eight-inch piston valve engine, October 23, 1902. Figures 3 and 4 were taken at Purdue. In the latter case the loss in power was equal to 15.28 per cent., and in the former to 10 per cent. The first engine was rated at 1,075 tons. Ten per cent. of this would be 107.5 tons. At 20 cents per ton per 100 miles, the direct loss, were the valves stinted for the entire trip, would be $21.50, or enough to buy forty-three gallons of valve oil, and we are not taking into consideration the loss due to the increased amount of coal required or overtime which would probably ensue, due to slow speed.

The proper way to fix an oil limit is by the indicator, or, in its absence, by the cylinder aren. Where the oil limit is too low an extra pint of valve oil, costing about 6 cents, will save a ton of coal costing $1.50.

Mr. J. A. Aspinall, an English authority, in the course of a series of experiments made upon a Lancashire and Yorkshire engine, says: "As a sight feed lubricator was used in the experiments, it was easy to watch the result of increasing the number of drops of lubricant per minute, and it was found that there was a perceptible improvement in the ease of movement of the valve when the lubricant was increased."

There is coming in vogue a style of compound locomotive on which the piston, where it passes through the central head, is packed by a metallic sleeve. This sleeve is oiled by guess, consequently it wears fast. As it costs $4.60 to renew it, it is often allowed to run as long as possible. In one observed instance these sleeves were worn one-quarter inch. This is equal to a hole in the boiler one and three-quarter inches in diameter, from which steam would escape twenty minutes in every hour.

According to D. K. Clark, an accepted authority, the steam escaping from that sized orifice per minute at 200 pounds pressure would be equal to that produced

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by the combustion of forty-five pounds of coal. In one hour this would be twenty times forty-five, or 900 pounds, and in a trip of ten hours 9,000 pounds, or four and a half tons. This, at $1.50 per ton, is $6.75, or enough to pay for a lubricator to take care of this wear.

What is the use of compounding steam to save coal, if we blow it through the stack in this manner to save oil? * * *

May not this be a solution, as taught by the engine truck? Or, to take another lesson, would not a full babbit bearing solve many difficulties? Let us, then, study out the real remedy to apply to effect true economy. Figure out by cylinder areas, etc., the actual oil required to thoroughly lubricate all parts. Use plenty of oil, but not wastefully. Put the oil in the right place, be it cylinder or cellar. Cast oil cups on the cellars, if necessary, but by all means make them "get-at-able," and also fulfill their proper functions, viz., to act as a receptable for packing and to prevent the box from closing. Wash the boilers often enough to prevent foaming. Teach the men that they can go further on a half a boiler of water and lubricated valves than on a full boiler with dry valves. That pouring engine oil on a smoking journal is simply a waste of oil. Use a good, spongy packing for all cellars, and a packer who will take the cellar down and pack it right, and not try to pack it through the spokes with a piece of baling wire. And, last but not least, when making an oil schedule, use ordinary horse sense, and know that the allowance is ample, and then compel your engineers to use ordinary horse sense in its application, and I firmly believe the result will be more than gratifying.—Rocky Mountain Railway Club, Oct. 18, 1902.

Odds and Ends

Congestion in Freight Terminals.—Officials of the Pennsylvania R. R. have this week made a thorough inspection of the terminals of that company in Pittsburg, with a view to take immediate action to relieve the situation respecting the congestion of freight traffic. A similar situation seems to be quite general throughout the country. The terminals of many of the large railway systems of the country are overcrowded. The large railway systems entering Chicago are each handling from 2,000 to 3,000 more carloads of freight per week than for a corresponding period last year. A correspondent of the Chicago Record-Herald, Pittsburg, November 20th, gives the following account of the efforts of the Pennsylvania and other roads to clear the yards: "The Pennsylvania officials early in the week issued an order which is unique in railway history. It was to the effect that until further notice passenger trains would not have any rights over freight trains and would have to make their schedules as best they could. Under this rule freight trains were rushed out of the city in express order, with the result that in two days the Pennsylvania moved a total of 6,700 cars. After this had been accomplished there were 15 miles of freight trains waiting to enter the Pittsburg yards. Official figures given out November 19th regarding the movement of trains show the following results: Allegheny yards, 70 trains, carrying 3,500 cars handled; Conway yards, 97 trains, 4,290 cars; Wellsville, Ohio, yards, 39 trains, hauling in all 1,279 cars; Cleveland, 930 cars, 42 trains; Alliance, Ohio, 50 trains, 920 cars; in and out of Chicago, 23 trains, 759 cars; at Fort Wayne, Ind., 26 trains, 695 cars. On the Pittsburg division of the Panhandle 120 trains carrying 3,000 cars were handled. The Pennsylvania Lines east moved about 100 trains, or between 4,500 and 5,000 cars. The Baltimore & Ohio succeeded in handling about 4,000 cars. The Pittsburg & Lake Erie road moved 4,000 cars. It is estimated that fully 760,000 tons of freight were handled. A. B. Starr, general superintendent of transportation for the Pennsylvania Company, says there are still about 15,000 cars tied up on the Pennsylvania Lines in the Pittsburg district.—Railway and Engineering Review.

* * *

Solid Air.—While it is known that air can be made solid as well as liquid, up to the present comparatively few experiments have been made in this direction. A scientist recently converted a certain quantity of liquid air into a small solid mass, and on examining it found it was as transparent as clear ice and as elastic as rubber. To test its elasticity he struck

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it with a hammer, and the latter immediately rebounded. That solid air may prove to be of commercial value is the opinion of some scientists in Germany, but it is admitted that many more experiments will have to be made before any certainty on this point can be arrived at.—Compressed Air.

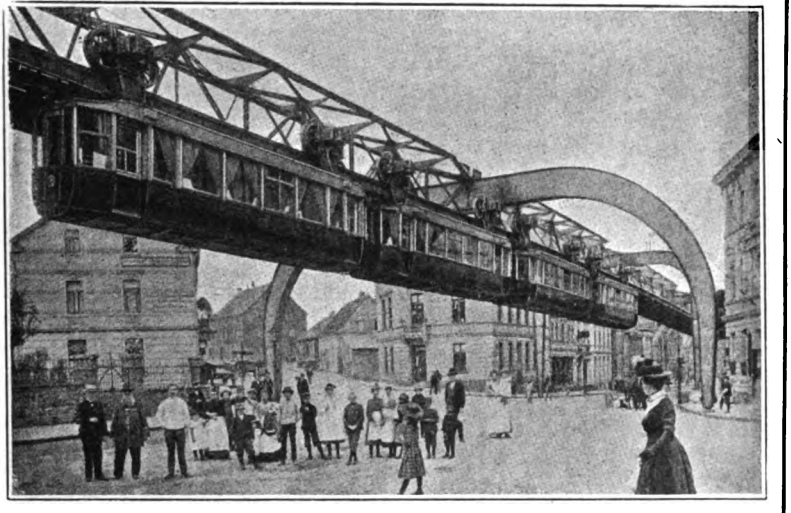
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Want More Pay.—According to the Chicago American, an agreement has been entered into between the grievance committees of the engineers and firemen in the employ of the Chicago and Alton Railroad to present a demand for a 10 per cent. increase in wages, and at the same time it will be urged that agreements be made with the Brotherhoods of Engineers and Firemen.

It is said that the engineers of the Chicago and Northwestern Railroad have asked for a rate of four and one-half cents per mile, while they are now receiving three and seven-tenths cents per mile, and that the engineers of the Chicago and Alton Railroad have asked a maximum rate of seven cents per mile, the firemen a minimum rate of two and fifty-five hundredths cents per mile, and freight conductors four cents per mile.

The engineers on the Chicago, Milwaukee and St. Paul Railroad are said to have rejected a proposition made by that company to pay them at the rate of four and five-tenths cents per mile.

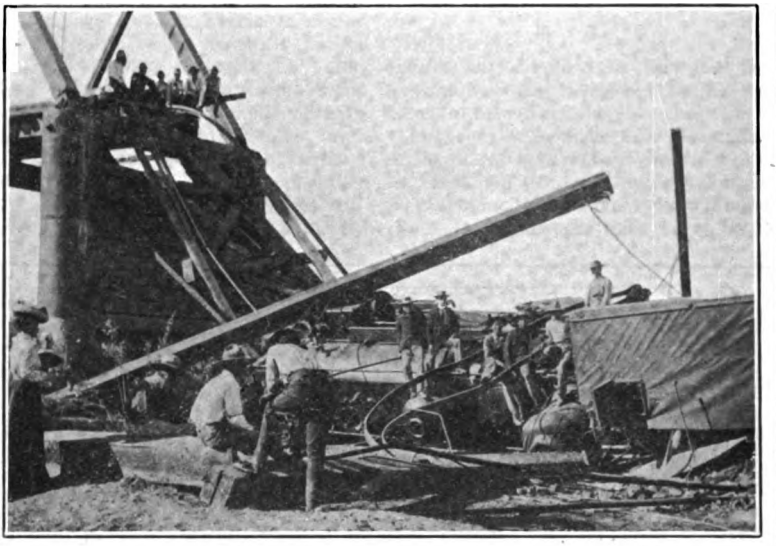
A Strenuous Class.—No one can come into close contact with railroad men without seeing that they represent a very high type of personal character. The duties which they are called upon to perform are of such a nature that strength is essential. Weak men can not stand the pressure under which all who are engaged in active railway operation must move. Railroad life is altogether strenuous. The demands made upon the vital forces are certainly as great, probably greater, than those of any other occupation. They are continuous during the entire year, each season bringing its peculiar problems to be solved and difficulties to be overcome. From the highest official down to the lowest employe, this pressure makes itself felt. Decisions must frequently be made on the instant and they involve safety to life and limb as well as enormous financial interests. To meet demands like this men must live constantly at their best and must maintain themselves at an unusually high state of efficiency. For a man to fail at a crisis is considered in railroad life as hardly less than criminal. He has no right to be weak, hesitating or mistaken. His vision must be clear. All facts bearing upon the question under consideration must be within his grasp. This kind of life naturally develops strong character, independence, self-reliance and great personal force. Those who direct large bodies of such men must themselves be

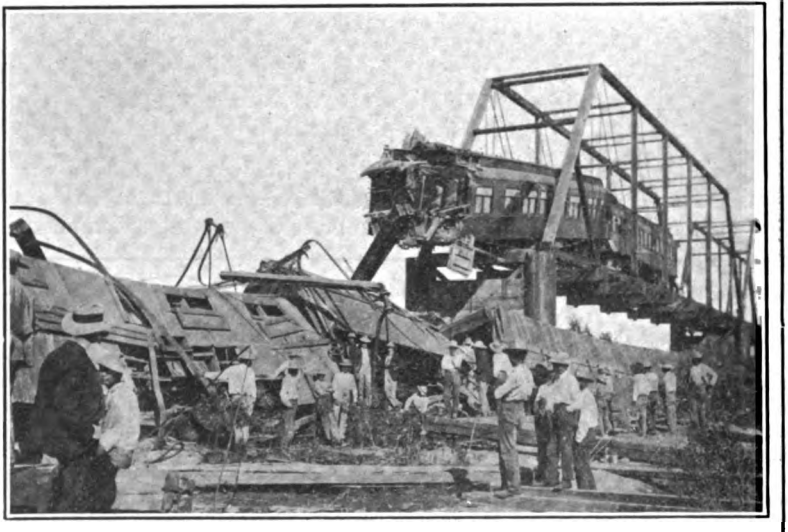


SUSPENDED ELECTRIC RAILWAY, VOHWINKEL SQUARE, ELBERFIELD

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the embodiment of the powers of the men under them. To show weakness is to lose their respect. To vacillate is to destroy discipline and unity of action. It is no wonder therefore that the employes of railroads are becoming increasingly influential in the communities where they live. The standard of intelligence is rapidly improving.—Railroad Men.





AN ARIZONA WRECK

On the Maricopa, Phoenix & Salt River Railway a span of the Salt River bridge fell, precipitating an engine and three freight cars to the ground, a distance of 25 feet. Engineer C. F. Thompson, of Lodge 10, B. L. F., escaped with slight injury. Fireman J. F. Goodrich lost a leg and was badly scalded.

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Enginemen's Course in Arithmetic

By W. S. Carter

Copyrighted 1901 by the Author.

Mensuration

124.—A surface in geometry has length and breadth but not thickness, and refers to a limitation, or a side of a *Solid.* A surface is denoted by a combination of lines which completely enclose a plane space.

A *Plane Surface* is a flat surface; one with which a straight line would coincide if applied in any direction.

125.—A Polygon is a plane surface bounded by straight lines.

A *Regular Polygon* is one in which all of its sides are equal and all of its angles are equal.

An *Irregular Polygon* is one in which all of its sides and angles are not equal

A *Triangle* is a polygon which has three sides.

A *Quadrilateral* is a polygon which has four sides,

A *Pentagon* is a polygon which has five sides.

A *Hexagon* is a polygon which has six sides.

A *Heptagon* is a polygon which has seven sides.

An *Octagon* is a polygon which has eight sides,

A *Nonagon* is a polygon which has nine sides.

A *Decagon* is a polygon which has ten sides.

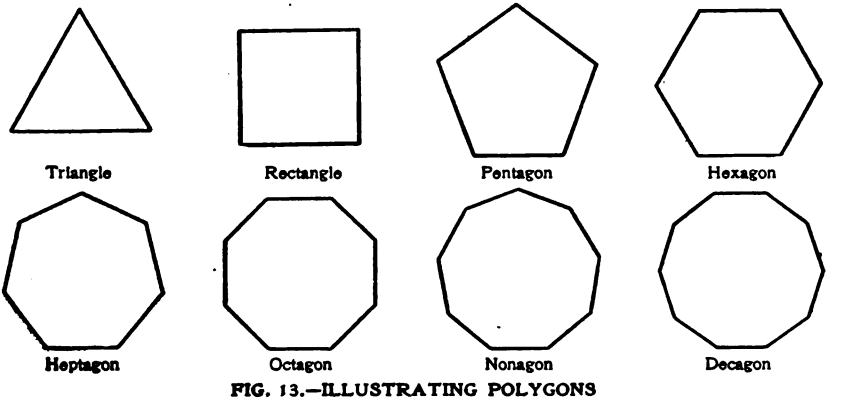


FIG. 13.—ILLUSTRATING POLYGONS

126.—Triangles are of three classes: *Equilateral, Isosceles* and *Scalene.*

An *Equilateral Triangle* has three equal sides and three equal angles.

(In Fig. 14 the triangle a b c is an equilateral triangle.)

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An *Isosceles Triangle* has two equal sides, and two equal angles.

(In Fig. 14 the triangles d e f and j k l are isosceles triangles.

A *Scalene Triangle* has no equal sides, and no equal angles.

(In Fig. 14 the triangles g h i and m n o are scalene triangles.)

A *Right Angle Triangle* is one which has one right angle. A right angle triangle may be isosceles or scalene, but never equilateral.

(In Fig. 14 the triangle g h i is a right angle triangle.)

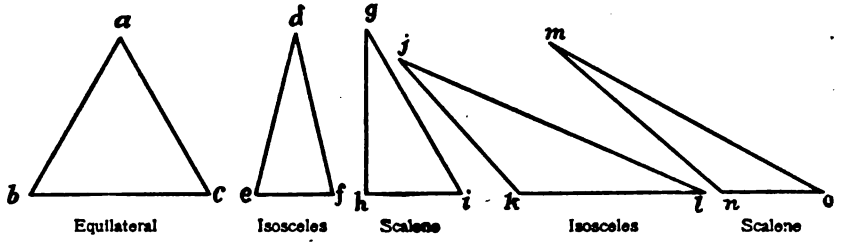


FIG. 14.—ILLUSTRATING TRIANGLES

127.—Quadrilaterals are of six classes: *Square, Rectangle, Rhombus, Rhomboid, Trapezoid* and *Trapezium.*

A *Square* has all four sides equal and all four angles equal, and has two pairs of parallel sides, and all angles are right angles.

A *Rectangle* has four right angles, and has two pairs of parallel sides.

A *Rhombus* has four equal sides, and has two pairs of parallel sides, and has no right angle.

A *Rhomboid* has one pair of parallel sides that are greater than the other pair of parallel sides, and has no right angle.

A *Trapezoid* has one pair of parallel sides.

A *Trapezium* has no sides parallel.

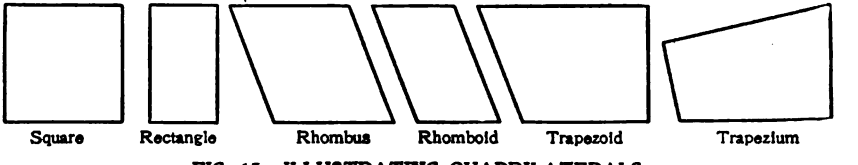


FIG. 15.—ILLUSTRATING QUADRILATERALS

A Parallelogram is a quadrilateral with opposite sides parallel, and, therefore, includes squares, rectangles, rhomboids and rhombi.

(It will be noted that the plural of rhombus is rhombi. A square is always a rectangle, and a rectangle may be a square.)

128.—Properties of Polygons.

The *Base* of a polygon is the line or side upon which it is supposed to stand.

(In Fig. 16 the line b c is the base of the triangle; the line e f is the base of the trapezoid; the line j k is the base of the hexagon, and the line p q is the base of the square.)

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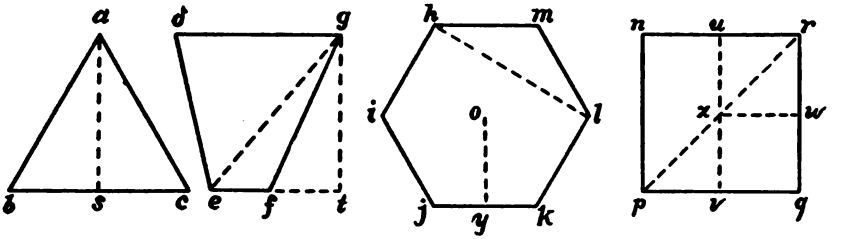


FIG. 16.—PROPERTIES OF POLYGONS

The *Altitude* of a polygon is the perpendicular distance from its base to its highest point.

(In Fig. 16 the line a s is the altitude of the triangle; the line g t is the altitude of the trapezoid, and the line u v is the altitude of the square.)

The *Center* of a regular polygon is a point within that is equally distant from the centers of all the sides.

(In Fig. 16 the point o is the center of the hexagon, and the point x is the center of the square. It is evident that unless a polygon is *regular* it can have no center.)

The *Perimeter* of a polygon is the broken line that bounds it. In practice the word perimeter is also used to denote the length of the line.

(In Fig. 16 the lines a b, b c and c a form the perimeter of the triangle.)

The *Area* of a polygon is a definition of its superficial extent, or the amount of surface enclosed by its sides. Areas are measured by square measure.

(For table of square measure see Art. 84, February, 1902. For reduction, etc., of square measure see Arts. 88 to 94, inclusive, March, April and May, 1902.)

An *Apothem* is a line drawn from the center of a regular polygon to the center of one of its sides.

(In Fig. 16 the line o y is an apothem of the hexagon, and the line x w is an apothem of the square.)

A *Diagonal* is a straight line connecting any two of the angles of a polygon, except adjacent angles.

(In Fig. 16 the line e g is a diagonal of the trapezoid, and the line p r is a diagonal of the square. It is evident that a line drawn between adjacent angles would form one side of the polygon.)

129.—Propositions Relating to Polygons.

Prop. X.—A Regular Polygon may be divided into as many equal triangles as the polygon has sides, or enclosed angles.

(In Fig. 17 we find that by drawing lines from the center o of each of the regular polygons to all of the angles each polygon is divided into equal triangles, and in each polygon there are as many of these equal triangles as there are sides or angles in the polygon.)

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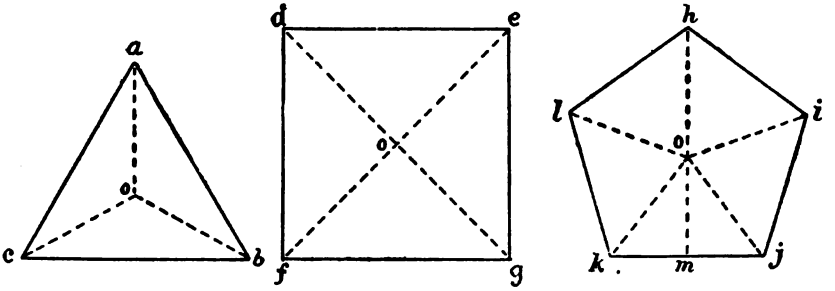


FIG. 17.—PROPOSITIONS RELATING TO POLYGONS

Prop. XI.—The Apothem of a Regular Polygon is equal to the Altitude of each of the equal triangles, which are formed by drawing lines from the center to all of its angles.

(In Fig. 17 the pentagon has been divided into 5 equal triangles, by drawing the lines h o, i o, j o, k o and l o. The apothem o m is drawn from the center of the polygon to the center of one of its equal sides. This apothem is also the altitude of the triangle k o j. As all of the triangles are equal the apothem o m is the altitude of each of the triangles.)

Prop. XII.—The sum of the bases of all of the triangles, which are formed by drawing lines from the center of a regular polygon to all of its angle, is equal to the perimeter of the polygon.

(In Fig. 17 the center o in each polygon is the vertex of each triangle, and the sides of the polygons are the bases of the triangles; therefore, the sum of the bases of all the triangles is equal to the sum of all of the sides of the polygon. The sum of all of the sides of a polygon is its perimeter.)

Prop. XIII.—Any polygon may be divided into triangles by drawing diagonals from one of the angles, and the number of triangles so formed will be two less than the number of angles of the polygon.

(In Fig. 18 diagonals are drawn from the angle o in each of the polygons. The irregular polygon a b c d e o has six angles, and is divided into four triangles. The pentagon o h i j k has five angles, and is divided into three triangles. The trapezoid o m n l has four angles, and is divided into two triangles.)

Prop. XIV.—The sum of all of the angles of a regular polygon is equal to the number of the angles, less 2, multiplied by 180.

(In Fig. 18 the pentagon is a regular polygon with five sides and five angles. Then $5-2=3$, and $3\times 180=540$. The sum of all of the angles of a pentagon is 540°.)

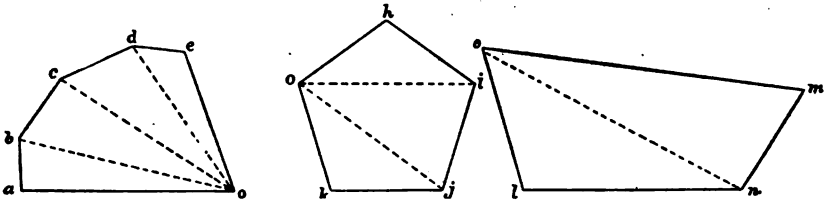


FIG. 18.—PROPOSITIONS RELATING TO POLYGONS

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Prop. XV.—The sum of all the angles of any polygon is equal to twice as many right angles as the polygon has angles, less 4 right angles.

(In Fig. 19 we find by the use of a protractor that the sum of the angles is as follows: $100° + 130° + 125° + 75° + 110° = 540°$. There are 5 angles in the polygon shown in Fig. 19, and from Prop. XV we find the same result thus, $5 \times 2 = 10 - 4 = 6 \times 90° = 540°$.

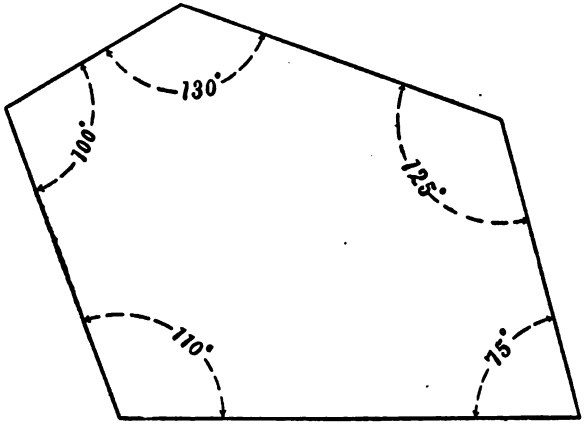


FIG. 19—SUM OF ALL ANGLES EQUALS TWICE AS MANY RIGHT ANGLES AS THE POLYGON HAS ANGLES, LESS FOUR RIGHT ANGLES.

Prop. XVI.—Any angle of a regular polygon is equal to the sum of all of the angles, divided by the number of angles.

(In Fig. 18 the sum of all of the angles of the pentagon has just been shown to be 540°; then, $540 \div 5 = 108$. The measurement of any angle of a regular pentagon is 108°.)

Prop. XVII.—In any polygon lines drawn from the center to the enclosed angles bisect those angles, therefore, each of the two angles of triangles so formed will be equal to $\frac{1}{2}$ of the angle of the polygon.

(In Fig. 17 the angles of the respective polygons are bisected by the lines drawn from the center o. It has been shown in Prop. XVI that the measurement of any angle of a regular pentagon is 108°; therefore, the angle o i j measures 52°. For the same reason the angle o b a measures 30°, for it has been shown in Prob. 7 that any of the angles of an equilateral triangle measure 60°, and $\frac{1}{2}$ of 60° is 30°.

Prop. XVIII.—The angles of any of the triangles that rest upon the center of a regular polygon are equal to 360° divided by the number of angles in the regular polygon.

(In Fig. 17 the measurement of the angle h o i, which rests on the center of the pentagon, is $360° \div 5 = 72°$. In an octagon the angle of the triangle, which rests upon the center, would be $360° \div 8 = 45°$. In an equilateral triangle the angle of the triangle, which rests upon the center—the angle a o b in Fig. 17—is $360° \div 3 = 120°$.

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130.—Problems Involving Measurement of Angles.

Prob. 7.—What is the measurement of the angles of an equilateral triangle? *Ans.* 60°.

From Prop. XIV: $3-2=1$, and $1\times 180^\circ=180^\circ$, which is the sum of all of the angles. From Prop. XV: $180^\circ\div 3=60^\circ$, which is the measurement of any of the angles of an equilateral triangle.

Prob. 8.—What is the measurement of the angles of a square or rectangle? *Ans.* 90°.

From Prop. XIV: $4-2=2$, and $2\times 180^\circ=360^\circ$, which is the sum of all of the angles of a rectangle. From Prop. XV: $360^\circ\div 4=90^\circ$, which is the measurement of any of the angles of a rectangle.

Prob. 9.—What is the measurement of the angles of a regular pentagon? *Ans.* 108°.

From Prop. XIV: $5-2=3$. and $3\times 180^\circ=540^\circ$, which is the sum of all of the angles of a pentagon. From Prob. XV: $540^\circ\div 5=108^\circ$, which is the measurement of any of the angles of a regular pentagon.

Prob. 10.—What is the measurement of the angles of a regular hexagon? *Ans.* 120°.

From Prop. XIV: $6-2=4$, and $4\times 180^\circ=720^\circ$, which is the sum of all of the angles of a hexagon. From Prop. XV: $720^\circ\div 6=120^\circ$, which is the measurement of any of the angles of a regular hexagon.

Prob. 11.—What is the measurement of the angles a regular heptagon? *Ans.* $128\frac{4}{7}^\circ$.

From Prop. XIV: $7-2=5$, and $5\times 180^\circ=900^\circ$, which is the sum of all the angles of a heptagon. From Prop. XV: $900^\circ\div 7=128\frac{4}{7}^\circ$, which is the measurement of any of the angles of a regular heptagon.

Prob. 12.—What is the measurement of the angles of a regular octagon? *Ans.* 135°.

From Prop. XIV: $8-2=6$, and $6\times 180^\circ=1080^\circ$, which is the sum of all of the angles of an octagon. From Prop. XV: $1080^\circ\div 8=135^\circ$, which is the measurement of any angle of a regular octagon.

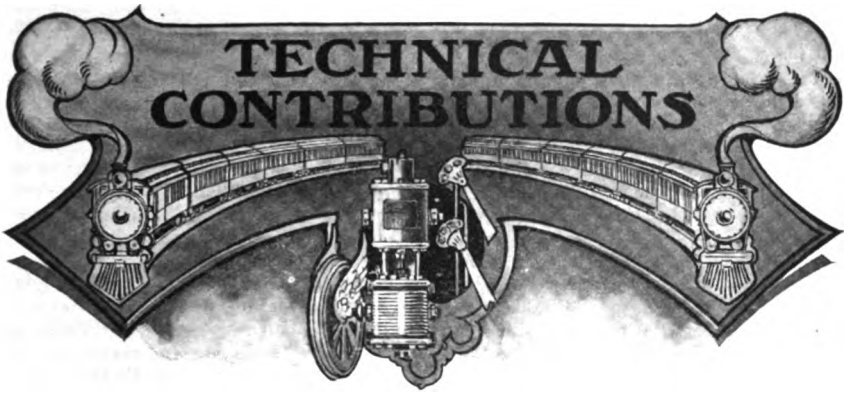
Prob. 13.—What is the measurement of the angles of a regular nonagon? *Ans.* 140°.

From Prop. XIV: $9-2=7$, and $7\times 180^\circ=1260^\circ$, which is the sum of all of the angles of a nonagon. From Prop. XV: $1260^\circ\div 9=140^\circ$, which is the measurement of any angle of a regular nonagon.

Prob. 14.—What is the measurement of the angles of a regular decagon? *Ans.* 144°.

From Prop. XIV: $10-2=8$, and $8\times 180^\circ=1440^\circ$, which is the sum of all of the angles of a decagon. From Prop. XV: $1440^\circ\div 10=144^\circ$, which is the measurement of any of the angles of a regular decagon.

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The Geared Locomotive

AMONG the greater class of people, little is known of the "geared locomotive," in fact this will be found the case with the majority of the mechanical fraternity.

There are three types of this style locomotive built, the Climax geared locomotive, built by the Climax Mfg. Co., Corry, Pa., Heisler geared locomotive, built by the Stearns Mfg. Co., Erie, Pa., and the Shay geared locomotive, built by The Lima Locomotive & Machine Company, of Lima, Ohio. The most notable of these three, and the style which has been exciting most comment among the mechanical men of the various large railway systems of the United States, Canada and Mexico, is that of the "Shay Geared." The geared locomotive is designed to meet the requirements of roads containing heavy grades and sharp curves, where the ordinary type of direct locomotive would be impracticable to operate, and it is noted for the seemingly unreasonable heavy loads it can draw over such grades and around sharp curves. The method of conveying the power from the cylinders through gears to the driving wheels, enables the geared locomotive to maintain a very slow speed, yet still keep moving and dragging its load, while the direct locomotive would exhaust all its energy in keeping up the momentum of itself, let alone drawing a load. The geared locomotive has shown by severe tests given it by such roads as the Canadian Pacific, El Paso Rock Island Route, and others, its great adaptability for such class of work, and it is working in all parts of the globe.

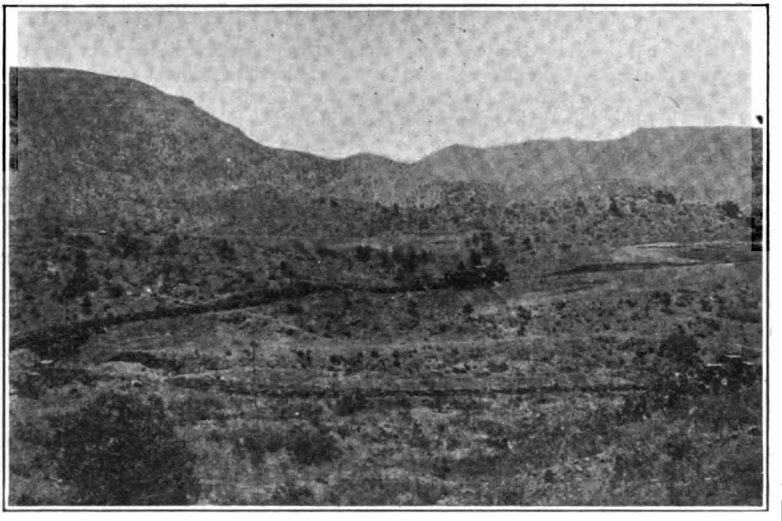
The birth of the Shay locomotive dates back to the year 1880, and was invented by a logger in Michigan by the name of E. Shay, from which it derives its name, and was originally designed to meet requirements of lumbermen, where tracks must be laid to where the timber is, not admitting a selection of suitable grades, curves, etc., which is usually admissible in roads of ordinary construction. It was gotten up in a crude manner at first, and when comparing it then with the great improved locomotive which is now being turned out by The Lima Locomotive & Machine Company, it would be like making a comparison of one of our modern direct connected locomotives with the ones built way back in the early history of the locomotive.

As the years pass by the consumption of timber becomes greater, and while there is considerable available timber lands yet left uncleared, they are situated in the most undesirable sections of the country. The lumbermen have followed out the old saying "Take the best first and you will always have the best," therefore the timber lands which are left are the most difficult to cut the timber from and get to market. Perhaps in no branch of the lumber business has more rapid strides been made in the past few years, than the methods of hauling logs, and the first thing which presents itself to the lumberman when starting in to cut a body of timber, is what grades can be obtained for his railroad on which to carry his timber to the mill, and the cheapest and best method to do it. While it is a well known fact that the best results from railroading are obtained from low grades, yet the operation of the logging railroad is not generally permanent and the fair-minded and successful logger does not desire to put any more money into his railroad than absolutely necessary. He generally lays a

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cheap constructed spur into one part of the timber from a main line leading to his mill which is better constructed, cuts the timber from this portion and then removes the track to some other part of his timber and so on until it is all cut. Some loggers use the hoisting engines with cables to do their logging, others use large direct and saddle tank locomotives, but the most progressive loggers in this country are using the general locomotive.

In the mining districts, the question has confronted the operators as to the cheapest method of getting their ore, coal, etc., transported to where same can be marketed. The Canadian Pacific Railway was confronted by this very same question when they were figuring on handling shipments of ore from their mining camp at Rossland, B. C., which grew with each passing month. The company had built what is known as the Rossland Branch, and one section of this from Smelter Junction where the Canadian Smelting Works Company located their big plant, to Rossland where the mines are situated, a distance of eleven miles by rail, the climb aggregating over 1,000 feet. The location of the roadbed, however, enabled the grades to be kept down to 4 per cent. and 4.2 per cent., yet it can be readily seen that the problem before the operating department to furnish motive power to successfully and cheaply handle these ore shipments was not an easy one to solve. The fact that the mines were situated at the top of the hill, it can plainly be understood that the problem was not to get the ore cars, loaded, down the grade, but to bring the empty cars back from the smelter and haul the necessary freight and coal required to keep a thriving little town of 7,000 inhabitants, with at least a half dozen of active mines using large quantities of coal and machinery. The company was operating on this branch of road locomotives of standard consolidation type, weighing about 110 tons each built at the company's own workshops in Montreal. This class of engine is admirably adapted for the ordinary grades encountered in the mountain divisions, but they were costly and ineffectual on such grades as were to be overcome on the Rossland and Smelter Junction run. The geared locomotive was proposed to the company and after considerable consideration they placed an order with The Lima Locomotive & Machine Company for one 100-ton engine. This engine was delivered and placed to work and it was found that it would do about two and one-half times as much as the consolidation locomotives, and do the work with perfect safety, without any danger whatever of stalling on the grades, as was so often the case with the consolidation. So well pleased was the railroad company's mechanical department, that a duplicate of



A 140-TON SHAY LOCOMOTIVE

Rounding the "Horseshoe Curve" on the El Paso Rock Island Route.

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this engine was ordered and delivered some time ago, and the writer understands that the company is now considering the purchase of a 150-ton geared locomotive to be used as a "pusher" on mountain division of its main line.

The Shay general locomotive is also found working on the "Crookedest Railroad in the World," The Mill Valley & Mt. Tamalpais Scenic Railway running from San Francisco to Mill Valley, Cal., a distance of eight and one-fifth miles. The longest straight piece of track found on this road is but 413 feet, and the roadbed is cut in the solid rock of the mountain side at some points. This mountain-climbing railway is not a "cog road" and has no steep incline, as the grade is gradual, the average being five feet to the hundred, and the maximum, seven, but as an ascent of 2,500 feet must be made the road takes a tortuous course, winding in and out the numerous canons, making 277 curves in the distance of eight and one-fifth miles.

You will probably be surprised, when we state that the "Heaviest Locomotive on Drivers in the World" is a geared locomotive. This locomotive weighed on drivers 280,000 pounds and was furnished for the El Paso Rock Island Route. To corroborate this statement, we will compare this engine with the heaviest direct locomotive yet built, which weighed on drivers 267,800 pounds and was furnished for the Atchison, Topeka & Santa Fe Ry., by the Baldwin Locomotive Works, Philadelphia, Pa. This "remarkable geared locomotive" was designed at the outcome of the operating department of the El Paso Rock Island Route to provide a machine which would economically operate on the division extending from Alamogordo, New Mex., to Cox Canon, N. M. This division is 31 miles in length and has a total elevation between terminals of nearly 6,000 feet, the grades ranging from 3 per cent. to 6.2 per cent, the latter grade being coupled with heavy curves. After numerous tests of a number of types and makes of direct locomotives it was decided to consider the Shay locomotive, which was delivered back in April of this year and for the past few months it has been undergoing the most severe tests, the outcome of which will be of great value to the various large railway systems, which have such difficulties to overcome on their mountain divisions.

The writer also saw a notice a short time ago in the trade papers that the Chesapeake & Ohio Railway had just placed an order with the Lima works for a 150-ton engine This will be still heavier than the engine furnished the El Paso Rock Island Route, although it is understood that it will be of the same design.

We give some illustrations which will show the Shay locomotive and the conditions under which it is placed, and in conclusion would state that while there have been numerous novelties in the line of engine-building for grade work, there is not one produced so far which would tend to interest the casual spectator more than the Shay, and still hold the same position in the economic handling of heavy traffic over the mountain divisions of our large railway systems, as well as doing great service on logging and mining roads.

HENRY C. HAMMACK.

♣ ♣ ♣

Freezing Up of Train Pipes.

THE season of the year is now well advanced in which the danger of frozen train pipes is with us, and it will, therefore, be in order to devote a little time to their consideration. To be sure, not all of the readers of the FIREMEN'S MAGAZINE are located in a climate where, during the next four months, the temperature will fall low enough to freeze water, but I assume that, while they may be congratulating themselves that they are not troubled by this danger, they will, nevertheless, be interested in an article on the subject of freezing up of train pipes.

Two things are necessary in order to have a frozen train pipe; first, there must be water present in the train pipe in large quantities, and, second, the temperature of the weather must be 32 degrees Fahrenheit or lower; that is, the temperature must be below the freezing point.

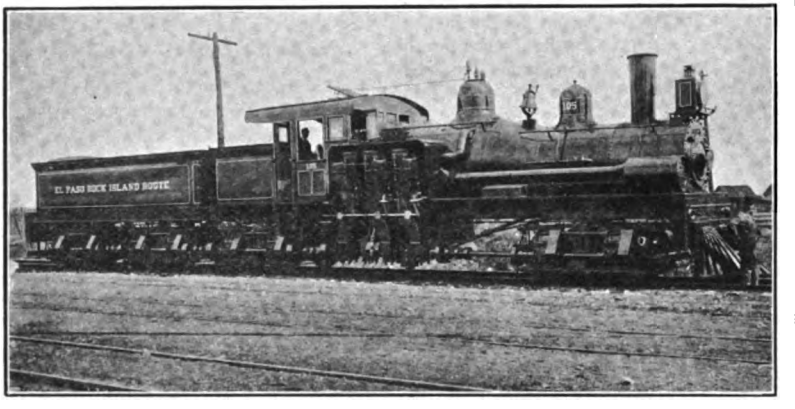
The second factor in the frozen train pipe problem is beyond our control, but not so the first; for with a little additional care during cold weather, we can prevent the presence of moisture in the train pipe in quantities sufficiently large to endanger blocking up, or materially restricting the passage therein, by freezing.

How does moisture and water get into the train pipe? In two ways. One is through the open ends of uncoupled hose that are allowed to hang down, which, especially during heavy snow storms and during the time that a heavy snow fall remains on the ground, are dragged through the snow until the opening in the end is filled up, then when coupled up,

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without being blown out, this snow is carried back into the train pipe, there to melt, and afterward to cause trouble in filling up the passage with moisture that will freeze when colder weather conditions prevail.

To prevent moisture from this source ever getting into the train pipe to do damage, it will be necessary to hang the hose up properly in the dummy hose couplings, and also before coupling to the hose of adjoining cars, to blow them out thoroughly. Indeed, at all times of the year, the practice of blowing out the train pipe occasionally, thus ridding it of the accumulations of dust and dirt, should be strongly encouraged and faithfully performed.



A 140-TON SHAY LOCOMOTIVE

Heaviest Locomotive on drivers in the world.

The water that finds its way into the train pipe, through the open hose coupling, does not, however, constitute the greater portion of the moisture found in train pipes, but in another way, namely; by means of the compressed air itself, on account of the moisture which it carries in suspension, precipitating it in the train pipe. No matter what the season of the year, the atmosphere always contains moisture in suspension, sometimes more, sometimes less, but it always will have some moisture in it. In cold weather it contains less moisture than in warm weather, but, of course, in cold weather what moisture the compressed air does contain, can be the source of greater danger on account of the likelihood of its freezing up in the piping.

The varying quantities of water found in the main reservoir at the ends of regular periods of pump work have caused many to wonder why more water is found there at one time than at another; and they have set about to discover the causes in order to find means to reduce the quantity which lodges in the main reservoir as well as to satisfy their own curiosity.

Air or atmospheric pressure, or we might say the free air, that the pump is taking in and compressing in the main reservoir, always contains moisture in suspension, as already stated, and it is this moisture we must try to prevent from working its way into the train pipe.

Two things effect the capacity of air from holding moisture, viz., pressure and temperature. Let us suppose that we have one hundred cubic feet of free air which we are going to pump into the main reservoir. This free air will contain a certain quantity of moisture. Now, let us suppose that we have in the main reservoir a pressure of seven atmospheres after we have pumped one hundred cubic feet of free air into it, or a pressure of about ninety pounds, as shown on the air gauge. This will mean that one hundred cubic feet of free air has been reduced in volume to one-seventh of one hundred cubic feet, or to a little more than fourteen cubic feet. The effect which this reduction in volume will have on the capacity of the air to hold its moisture will be to reduce it about six-sevenths; that is, considering the effect of pressure alone on the capacity of the air to hold its moisture, it will reduce directly as the pressure increases.

From the above it would seem that

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about all we had to do to free the air of all its moisture before it goes into the train pipe would be to compress it to a very high pressure in the main reservoir. But in doing this we meet with another difficulty; we heat air in compressing it, and the capacity of air for holding moisture in suspension increases with its temperature. Changes of temperature affect the capacity of air for absorbing moisture, and retaining it in suspension, so that we ought always to remember this fact, that the hotter the air, the greater will be the quantity of moisture that it will carry, and also that experience has shown that, in the ordinary method of compressing air, without special cooling apparatus, such as a water jacket around the air cylinder of the pump, the capacity of the air for carrying water is increased more by the heating, than it is reduced by the reduction in volume, due to compression.

From this we may conclude whenever we find air going through the return pipe and the engineer's valve, that is sensibly warmer than the outside air, or surrounding atmosphere, that there is moisture going into the train pipe that will be precipitated therein as the air cools, and will, if the weather be cold enough, freeze there and, possibly, cause serious trouble.

We can obviate such an occurrence to a large degree by keeping the main reservoir thoroughly drained, by keeping the air pump packing rings and valves in good condition, and by watching the rod packing on the air piston, and seeing that it does not leak.

Much can be done towards cooling the air down before it gets back to the engineer's brake valve and so prevent moisture from going back to the train pipe, but this is a matter that properly comes under the consideration of correct methods of piping, and a proper location for the main reservoir.

However, in closing, I might say that the cooler the location for the main reservoir the better, provided it is upon the engine; and if the main reservoir itself is made so as to present as much radiating surface as possible for the conduction of heat, more of the contained water in the compressed air will be precipitated in it, and, therefore, will not go into the train pipe.

Where main reservoirs are located on the tenders, extra precautions should be taken to prevent the discharge pipe from freezing up.

J. P. KELLY.

A Few Remarks on Boilers.

The gang was gathered on or about the bench which was the favorite lounging place of the engineers and firemen out of Talcott when they had an "off" day. There were more men present than at the previous gathering.

"Say, Tom, I hear that the 'Old Man' called you in because you couldn't keep the 202 hot, and you fellows had to give up your train and come back 'light' from Bennett, and were barely able to get in here with her."

"Well, that's the truth. We were on the local, and the 'Old Man' said that while standing around Bennett and unloading merchandise I allowed the fire to get low, and the cooling off of the flues caused them to leak. Of course, I know that this would cause them to leak, but in this case I was not guilty."

"Did you convince the 'Old Man' that you were not?" asked Charley Smith.

"I don't know. He is not the sort of man who commits himself readily. You see the boiler is full of mud, as we call it, or, more properly speaking—scale. It commences to accumulate from the time any boiler goes in service until it returns to the shop, but with us here when the water is particularly bad, and when the business has been as heavy as it has of late, and the boilers have not been washed out as often or as thoroughly as they should be, scale accumulates rapidly in them and nearly all our engines are reported as leaking. I think that is one thing that makes the 'Old Man' so hostile with a number of the men about their engines leaking," replied Tom Bailey.

"Yes," said Charley Smith, "it's hurry up and cool them down; run the water through them quick; fill them up; fire them up; blow them up; and get them hot as soon as possible. This rapid contraction and expansion is bound to bring a big strain on the boilers, and do more damage than the burning down of the fire on the road."

"Yet both should be avoided," replied Tom Bailey. "I know engineers who delay reporting boilers washed out because on their next trip their engines die or all but die with them. Of course, this is not a good excuse, but it shows to what extent this ill has grown.

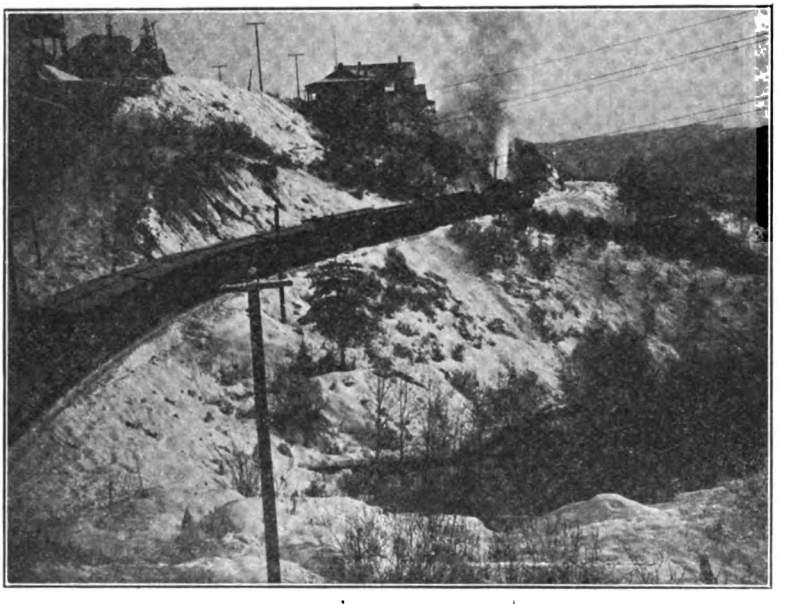
"When a boiler is washed out, it should be cooled gradually, all scale removed that is possible, and it should be fired up so as to be hot at the required time without forcing the fire. Without sufficient power

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to handle the business easily this can not be done. When a boiler begins to fill with scale and leak, the flues especially grow worse rapidly. The water running over the sheet tends to destroy the life of the iron and cause the flue sheet to crack, and the banking of the mud inside the sheet and around the flues renders the work of a boilermaker in calking, almost futile. He may stop the flues from leaking for a short time, but when twenty or thirty miles out on the road the flues will commence to leak, and the boilermaker will be blamed by the engine crew for their leaking, and the engine crew will be blamed by the 'Old Man,' nine times out of ten, for an engine failure when, in fact, neither party is to blame. It's the mud behind the sheet, and nothing else, that's to blame.

"It's impossible to calk the flues so they will hold, because the mud, or scale, holding the water from the flues or sheet cause so unequal and so great an expansion. The same applies, of course, to side and crown sheets leaking. Of course, the more a flue is calked the easier it can be made to leak, as the bead is cut away by the calking tool. The same is true of all leaks.

"After railroads commenced the use of the solid staybolt in preference to the staybolt which was hollow clear through, many shops became careless in their staybolt tests. There was nothing to indicate a broken bolt to an ordinary observer, and it was only after some disastrous experience, or the testing of some engine after a long period of neglect, when a great number of broken bolts were found, that drilling into the bolt for a sufficient distance from the outer end—so as to reach a little beyond the inner side of the sheet—was adopted, and as the bolts invariably break near the sheet they at once give warning of the breakage."



A 100-TON SHAY LOCOMOTIVE

Ascending grade on Canadian Pacific, near Rossland, B. C.

"Well," said Charley Smith, "if those holes are drilled on purpose to give warning that a bolt is broken, why is it that the hole is so often plugged by the boilermaker to stop an annoying leak, instead of being replaced, as it should be, at once?"

"For two reasons," replied Tom Bailey. "One is that the engine is wanted to go out in service immediately, and the other is that the man doing it does not realize the amount of strain that is thrown on the adjacent bolts by the breaking of one. If a bolt is sustaining a pressure of, say

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400 pounds, this load distributed on its immediate neighbors would increase the strain on them one-fourth. This sudden increase in strain is liable to break other bolts, the same as a sudden decrease or increase of pressure in one part of the boiler may cause damage to another part.

"Allowing the steam pressure to vary greatly on the road will cause a boiler to leak, and is a strong point against poor steaming engines. Faulty design is sometimes the prime cause of an engine leaking, or of a short-lived sheet."

"You will all remember," said Wesley Harris, "that a couple of months ago Will Wright was up on the carpet for burning the crown sheet of the 1054, and that he cleared himself of the charge. Ordinarily a man doesn't live to explain similar cases, or else the circumstances are such that no explanation is possible, but this case was different. If Tom will not object to my taking the floor I will explain the incident to you."

"You have my permission, for I am about exhausted," replied Tom Bailey.

"When the 1054 came out of the shop," said Wesley Harris, "Wright and I were called to limber her up for road service. The 'Old Man' is generally careful to have some old runner do this work, but Wright has been very successful as an engineer, so he was given the work. We worked around the yard the first day and everything worked nicely. We were to take the engine out on the Eighth Division, from where she had come to the shop, and the next day we went over the First Division light. As the engine was running all right, we were to pull a train from there to where we were to leave her. The next morning early we started with a full train and, as there is a stiff hill to start on when going west on the Second Division, Wright had to work the engine to its full capacity.

"When we stopped at the first coal shed, instead of the steam pressure increasing and blowing off, the pointer commenced to drop back and, looking in the firebox, I found the crown sheet leaking freely in numerous places. I called Wright's attention to it, but neither of us considered the matter of serious moment, as the engine was just out of the shop and we had charge of it since it came out. We got the steam up and went on, but the leaks grew worse and we were finally compelled to set out our train and go in with only the caboose.

"Will reported the condition of the engine and we went up town to supper, and while at supper some enginemen came in from the Third Division, and we heard them talking about the 1054 being burned. After supper we went back to the roundhouse and found the foreman there with his best boilermaker, and they had decided that the engine was burned and, as a natural consequence, the engineer was the man who was guilty, without trial. The foreman was going to discharge Wright, then and there, but Will demanded a chance to clear himself. The foreman consented, and told him to report to the 'Old Man' when he was ready with his defense.

"It was several days before he was ready. He went out on the Eighth Division and found out what was the condition of the crown sheet, and boiler generally, before the engine had went to the shop. At the shops he secured some more evidence as to how the work had been done, before those who were responsible for the way the engine had been turned out of the shop were aware of what he was doing. When he went before the 'Old Man' he showed how the sheet had been pouched down, and how—after the removal of the scale and mud—the sheet had been heated and pounded back into place. This would have been all right had not the sheet already been dead or, as it is termed, 'mud burned,' and full of little cracks and flaws that would never improve with age or calking.

"Working the engine to the limit up Bucks Hill with a raging fire increased the expansion, and when the fire was lighter and the sheet cooled, contraction commenced, the cracks opened, and all the hidden weaknesses of the crown sheet came into view. Wright made these things so plain that the 'Old Man's' suspicions were aroused, and on investigation he found that the crown sheet should have been removed and a new one put in. No one was discharged on account of it, however. It was a case of poor judgment on the part of the boss boilermaker, which came to the surface more quickly and plainly than most of them do."

"I don't see how a man who is doing that kind of work every day could make an error like that," said Andy Johnson.

"It is easy enough done. He thought, because of the fact that the pouches in the sheet were hammered back without developing bad indications, that the life of the iron was not destroyed, and there is where he erred," replied Harris.

"I suppose the length of time a sheet has been in service influences their decision?" queried Johnson.

"Ordinarily, and also the condition and

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appearance of a sheet or boiler shell on the inside of the boiler goes far in influencing the retention or removal of a sheet or section of a shell, but in these days of continuous service for a locomotive, the work done—and not the estimated length of life of iron—will have to enter into consideration," replied Harris.

"There comes the caller," interrupted Charley Smith. "This meeting is adjourned until the next favorable opportunity occurs for its reconvening."

W. L. FRENCH.

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The Mason Pump Governor.

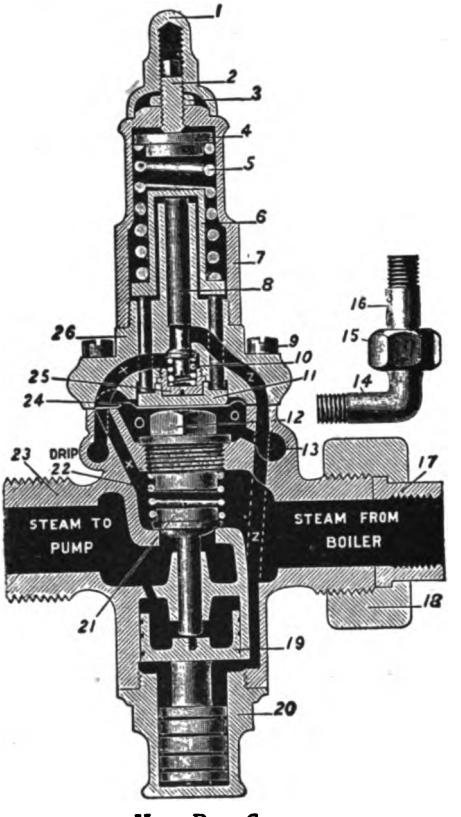
A number of air pump governors, known as the Mason Governor, or Regulator, are in use on several railroads, and it may, therefore, be of interest to many of the readers of the FIREMEN'S MAGAZINE to read a description of this type of pump governor.

The accompanying figure is a section showing all the parts that are enclosed in the body and casing. In the figure 1 is the cap for the adjusting screw; 2 is the adjusting screw; 3 is the lock nut for the adjusting screw 2; 4 is a button; 5 is the regulation spring; 6 is a cap for valve 8; 8 is the regulating valve; 9 is a screw; 10 is a small spring under valve 8; 11 is a diaphragm button; 12 is a large cap nut; 13 is the passage to air connection; 14 is an air pipe L; 15 is a union nut; 16 is a union swivel; 17 is a large steam union swivel; 18 is a union nut; 19 is a piston with dash pot extension; 20 is the cap for the piston 19; 21 is the main steam valve; 22 is a spring placed over steam valve 21; 23 is the steam connection to pump; 24 is an air diaphragm; 25 is a cap nut; 26 is the diaphragm cap.

Chamber O communicates with the train pipe or the main reservoir, depending upon which pressure is operating the governor; passage xx leads from the main steam passage from the boiler to the lower side of regulating valve 8; passage Z leads from the upper side of regulating valve 8 to the chamber below piston 19.

The operation of the governor is as follows:

The regulating spring 5 being properly adjusted, and no steam turned on, regulating valve 8 is off its seat and spring 22 holds main steam valve 21 to its seat, with piston 19 in the position shown in the figure. When steam is turned on to start the pump, it finds its way through passage x to valve 8 and past valve 8 into passage Z, through which it is conducted to the chamber under piston 19, and it acts on the lower side of piston 19 to force this piston upward. As piston 19 moves



Mason Pump Governor.

upward it raises main steam valve 21, from its seat, and thus a passage is opened for steam to go to the pump.

When the pump has accumulated the maximum air pressure at which the governor is adjusted, this air pressure accumulating in chamber O acts upon the diaphragm 24 and diaphragm 11, forcing them upward against the extended legs of cap 6.

In this manner the pressure exerted on top of the regulating valve 8, by means of the regulating spring 5 and cap 6, is reduced sufficiently to allow the steam pressure in passage x to force regulating valve 8 to its seat, thus cutting off the supply of steam to piston 19, and hence removing the pressure from beneath this piston. This action of the regulating valve leaves the steam pressure above main valve 21 free to force this valve to its seat, which it will do, and so cut off

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the supply of steam to the pump, and thus hold the pump stopped until the air pressure in chamber O falls below the maximum at which the governor is adjusted; or in other words, sufficiently to permit the regulating spring 5 to force the cap 6 downward again upon regulating valve 8, so as to force the latter from its seat, and permit steam at boiler pressure again to enter the chamber under piston 19, and force this piston together with main steam valve 21 upward, and open the steam passage to the pump.

This governor, like most other mechanical devices, is subject to defects in operation.

The defects in operations which are most likely to be met with are those which will prevent the pump from going to work after it has been stopped, and those which will prevent the governor from controlling the pump at all, permitting the latter to pump up to boiler pressure.

If trouble is experienced on account of the pump not going to work again due to lack of steam it will be known that main valve 21 is on its seat, and for some reason does not lift to allow steam to go to the pump.

As this valve is raised from its seat by steam pressure which is admitted by regulating valve 8, and acts upon main valve 21 through the medium of piston 19, it is possible that the regulating valve 8 is stuck shut; or that the piston 19 or its dash pot is binding. If the latter be not a neat fit the variation in size due to the expansion caused by heat will sometimes cause this piston to stick.

When the trouble is had on account of pump governor not stopping the pump when maximum pressure has been accumulated it is reasonable to assume that for some reason main valve 21 does not seat; and this can happen through failure of the regulating valve 8, to seat properly and to cut off the steam pressure from passage z and chamber x under piston 19. Regulating valve 8 being small is more likely to be affected by dirt that might prevent it from seating than would be main valve 21, although if the main valve should fail to seat properly, after regulating valve 8 had closed communication between passage x and z, the pump would continue to work until a pressure almost equal to boiler pressure had accumulated in the main reservoir.

If it is desired to remove piston 19 for inspection and repairs, first shut off the steam and then unscrew cap 20 when this piston may be taken out. To get at regulating valve 8 it is necessary to remove the screws 9, and after separating the spring case 7 and the diaphragm cap 26 from the governor body, unscrew cap nut 25, when regulating valve 8 may be easily removed for cleaning and repairs.

It is a good idea before removing the screws 9 to relieve the tension on regulating spring 5 by removing cap 1 and unscrewing adjusting screw 2.

When it is desired to inspect valve 21, proceed as for valve 8 except that the tension on regulating spring 5 need not be disturbed, and after the spring case 7 and diaphragm cap 26 are removed, unscrew nut 12, and the valve may be easily reached.

In cold weather the drip should be watched carefully to avoid freezing.

It will be seen that steam acts directly on the main steam valve to close it instead of air, as is the case with other types of air pump governors; and for this reason, all corrosion and sediment that is likely to collect around piston 19 and its dash pot, especially where the feed water is bad, should be frequently removed.

J. P. KELLY.

General Advance in Freight Rates.

There is considerable adverse comment from the press on account of the general advance in freight rates over the country. The railroads are scored severely for this move, but this can hardly be called a fair critcism.

Prices are advancing on everything that goes to make up the list of railroad necessities, such as coal, iron, steel, wood, and other material, and equipment of all kinds is more costly. Labor is receiving more in many departments, and is asking more in all.

With a steady increase in operating expenses confronting them, the railroads are doing what other business men would do—increasing the cost of their products to the user.

While business is heavier and earnings are greater, the relative cost of transporting freight has increased, and this increase must be met by a proportionate increase in rates.

W. L. FRENCH.

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Movement of Trains

By H. A. Dalby

Rules and Good Judgment.

QUESTION 78 this month presents a situation in which, as the writer states, every one seems to have complied with the rules and yet a collision was narrowly averted. Of course there was "a screw loose somewhere," and we presume the questioner wanted to know where it was. Not being familiar with the rules on that road we are unable to judge exactly where the fault lay. Possibly they did not specifically state that, in a case like the one before us, both conductor and engineer of the train to be passed should understand the arrangement, but as they are equally responsible for the movement of the train such understanding is certainly necessary. At any rate, the incident serves to call our attention to the necessity, not only of a thorough understanding of all rules, but a careful examination of the whole situation, taking especial care to cover every point whereby error may creep in. The incident related in question 75 in the December MAGAZINE is another evidence that this care is necessary.

It frequently happens that good judgment is quite as necessary as an understanding of the rules. In fact there are some rules which can not be considered executed unless they are applied intelligently. The rule, for instance, governing a flagman in the protection of his train can not be explicit as to details, as conditions vary so much. The man must use his judgment in properly executing the rule.

The action to be taken in the case of a train taking down green signals at a non-register station is another in which extreme care is necessary. This is especially true because it does not frequently happen. The rule provides that the conductor arrange with the operator or switchtender, or in the absence of both, with a flagman left there for the purpose, to notify opposing trains that the following section has not arrived. We may imagine that the conductor *might* be held partially responsible for making sure that the person who assumes this responsibility is a competent and reliable employe. It may be well, also, to think what trains are to be notified and to have such an understanding with the person to whom the duty is entrusted. The rule requires him "to notify all opposing trains of the same or inferior class," and this might require some explanation to some persons. The rule is necessarily flexible as conditions differ so materially and the necessity of care in its application should always be borne in mind.

* * *

Education by Experience.

The writer wishes to make himself understood by the readers of the MAGAZINE in expressing himself freely with regard to questions which come before him. He remembers an occasion on which he made certain criticisms relative to the work of dispatchers, and one of his hearers took exception to his remarks, probably thinking that he who spoke was not by any means perfect himself. We do not discuss the shortcomings of others because we have none of our own. To be frank with our readers, we have given them the benefit, in some cases, of our own mistakes. We look upon mistakes, oversights, lack of judgment, and all human imperfections, as experiences to help us to avoid the same mistakes in the future. We talk about "experienced railroad men," and of what does their "experience" consist? A portion of it, by no means inconsiderable, is mistakes; their own and others'. Herein, we believe, lies the value of associations, clubs, etc., for educational purposes. We tell our experiences to others. One man can not have all the experiences in the railroad world, but he can benefit largely by the experiences told by others. "No man liveth to himself alone," and this is very true in railroad work. We must help each other, and in no way can we better accomplish this help than by carefully examining such cases as are brought before us from time to time.

As we look back ten, fifteen, twenty years in railroad history, and compare the advantages of education which we now enjoy with the lack of them in former years, we should be thankful that we live in this progressive age. Books by the score are written, covering every department of the service. Brotherhood publications all realize the value of educational features. Railway clubs have been organized and continue to be organized all over the country and their published proceedings, if preserved, would form a library of most valuable literature. Associations are formed, comprising in their membership men of particular de-

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partments of the service, and these, also, publish and freely distribute the proceedings of their meetings. The Railroad Department of the Young Men's Christian Association endeavors to furnish, not only pleasant accommodations for men where they are located, but, we believe, very generally make it a point to have educational classes taught by competent persons.

In addition to these activities, we occasionally hear of some road whose officers appoint a time and place for a conference of employes, where opinions and criticisms are freely exchanged, and which, we can not doubt, are highly beneficial to all concerned.

We know of a prominent eastern system which, two years ago, on adopting a new code of rules, instituted a plan of holding schools of instruction, in which officers and employes meet to talk over, not only the rules, but all matters pertaining to their work. On some divisions men were taken over the road for a day, that by association with others they might receive benefit.

We have heard of one superintendent who took a novel method of educating his men. This was by means of the stereopticon, which has been used with success, we understand, in illustrating forms, colors and uses of signals, both in classes for instruction and in examinations.

It is our opinion, and we regret that it is so, that the department in which we are most interested has not received the recognition, from the standpoint of education, that it deserves, nor as much as some other departments. Dispatchers and trainmen alike are interested in getting trains over the road, and yet how little, comparatively, has been done to bring these two classes together, educationally, so that improved service may result.

These two classes are like the two halves of a pair of scissors, and successful work depends on harmony of action. Dispatchers think some trainmen do not try to get over the road, when in fact, they know but little of the work on the train. Some trainmen think the dispatcher does not want to help them, while, in fact, he is aching for an opportunity to help them if he can only find out some of the conditions which are necessary to know, in order to give the desired help. We can not help but wonder what would result from a little effort toward education in this branch of the service.

Upwardly Inclined Semaphores.

We have referred in these columns to semaphore indications by means of the upward inclination of the arm. This is in use for a caution indication on two prominent American roads, the signal being capable of three positions, the other two being horizontal for "stop" and inclined downward for "proceed." So far as we know, this is the extent of the use of the upwardly inclined arm in this country, but we are informed that the State Railroads of Belgium have adopted, as the standard signal, semaphores of two positions: horizontal for "stop" and upward for "proceed." It is claimed that the upward inclination can be seen much more plainly than the downward, and judging from the satisfactory results obtained from its use in the United States we may easily believe that the Belgium roads have made a wise choice.

Talks with an Air Brake Instructor

By E. C. Desoe

Dialogue No. 13—Brake Cylinders.

Instructor.—We will talk about the brake cylinder today. It is in the brake cylinder that the energy stored in the compressed air is converted into mechanical motion. Do you know how the cylinder is constructed?

Student.—I only know that there is a piston, which is moved out by the air pressure.

Instructor.—The cut, Fig. 1, will help you to understand how it is constructed. In the cut "2" is the cylinder body, "3" the piston, and "15" the piston rod, "4" the back head, "5" the front head, "6" the follower, "7" the packing leather, "8" the expander, "9" the release spring, "10" the follower stud and nut, "11" the cylinder head bolt and nut, "12" the gasket, and "16" the leakage groove.

Student.—What is the expanding ring, or as you have termed it, expander, for?

Instructor.—The expander is to hold the packing leather against the walls of the cylinder.

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Student.—Doesn't the air pressure do this?

Instructor.—Yes, the air pressure certainly does press the leather against the walls of the cylinder, or rather it has a tendency to do so, and does whenever the pressure is sufficient. When the pressure is admitted slowly to the cylinder, however, it will escape by the leather, when it is not held out by the expander. A good illustration of this may frequently be seen with a driver brake on a freight engine, which, when coupled to a train, will not apply, but with lone engine applies all right and is tight.

Student.—I understand then that this ring is of benefit only until pressure has accumulated in the cylinder.

Instructor.—That is right, for after that it can be of no benefit.

Student.—The leather of course is to make the joint between the piston and cylinder air tight, but is leather air tight?

Instructor.—Leather is not naturally air tight, that is, air under pressure will escape through it, unless it has been treated so as to fill up the pores. The leathers used in brake cylinders have been so treated, and are perfectly air tight, but after being in service some time they are apt to become porous again. In order to keep the packing leather in cylinders in good condition so that they will make a tight joint between the piston and walls of the cylinder, and also prevent air passing through them, it is necessary that the cylinder be so located that it will not be affected by the heat from the locomotive, and the leather must be kept pliable by oiling it.

Student.—Is there any other way by which air may escape from the brake cylinder?

Instructor.—It may escape by the gasket "12" which is rubber, but when put in place properly, and nuts screwed up as they should be, there is very little trouble from this source.

Student.—The driver brake cylinders on the engine I have been firing are not like the one shown in the cut. They have a stuffing box on the rod.

Instructor.—The cylinder shown in the cut is a tender cylinder. There are two types of cylinders, known as the "pull," and "push." The "pull type" is so constructed that air is admitted at the piston rod end and, as it moves the piston, the rod is drawn in. This construction requires a rod stuffing box to prevent the escape of air around the rod, and as it is very difficult to keep this joint tight this type is not popular, and is fast going out of use. This is the type the engine you refer to is equipped with. The cut illustrates the "push type." With this construction the air is admitted to the opposite end of the cylinder from the rod and, therefore, no stuffing box is required. The piston rod in this case is pushed out when the piston is moved by the air pressure.

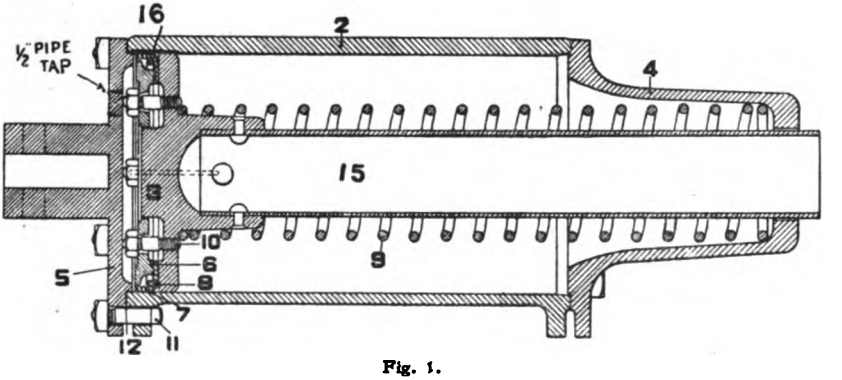


Fig. 1.

Student.—There are different styles, or patterns of this "push type" of cylinder, are there not?

Instructor.—Yes, several.

Student.—About how much air pressure does it require to move the piston and compress the release spring?

Instructor.—With an 8-inch cylinder it requires about 3 pounds to move the piston about 6 inches, without levers being attached to the rod. Three pounds pressure of air acting on a piston 8 inches in diameter exerts a force of about 150 pounds. Most of this is due to the resistance of the release spring, but some of it is due to the friction of the packing leather against the walls of the cylinder.

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Student.—What is meant by piston travel?

Instructor.—It is the distance the piston moves in the cylinder to apply the brake, and may be measured with a "pull" brake by marking the rod at the stuffing box, when the brake is applied, and then measuring from the stuffing box to the mark when it is released. With a "push" brake mark the rod at the cylinder head and, then, when the brake is applied measure from the head to the mark.

Student.—What is the shortest travel that can be had and have any pressure on the piston?

Instructor.—The space between the piston and front head, or pressure head as it is generally called, has nothing to do with the pressure on the piston, that is, the shortest travel that can be had and have the piston cover the leakage groove is about 4 inches (leakage grooves vary somewhat in length) and, if the groove is not covered, the air will escape through it by the piston and thence to the atmosphere. However, assuming the leakage groove to be stopped up, or take a driver brake cylinder without a leakage groove, there will be the same force exerted on the piston in release position as when at 8-inch travel, with the same air pressure acting on it. The volume, or quantity of air, back of a piston does not affect its force. The area, or square inches, on the face of the piston multplied by the pressure of air gives the value of the cylinder, or force exerted at the outer end of the piston rod.

Student.—I always supposed that it was necessary to have a quantity, or depth, of air in the cylinder to obtain any power.

Instructor.—No, the space between the piston and the head may be no more than the thickness of a sheet of paper.

Student.—Do all brake cylinders have a leakage groove?

Instructor.—All except driver brake cylinders have them, and within the past few years the manufacturers have been putting them in driver brake cylinders for such roads as desire them. There is no leakage groove in the driver brake cylinders on this road.

Student.—What is the object of the leakage groove?

Instructor.—It is to offset slight leakage in the train line, that is, when the leakage is only sufficient to cause the triple piston to be moved and admit a very little air to the brake cylinder it will escape through the groove by the piston before it has moved far enough to cover it, and the brakes are thereby prevented from creeping on.

Student.—I have noticed that the driver brake piston travel is never so much as the tender brake, and I wish that you would please explain why this is so.

Instructor.—All cylinders except driver brake cylinders are of such length that the piston may travel 12 inches without striking the head. Driver brake cylinders are made of different lengths, some permitting a travel of only 7 inches, others 8, 10 and 12 inches. Both driver brake cylinders are operated from the same triple valve and the pressure that may be developed in either will be the same, and will depend on the total travel of both pistons, therefore it is necessary in order to obtain the proper pressure that each one have about half the travel of the tender piston, where there is but one cylinder operated by a triple.

Student.—I have always understood that the piston travel had something to do with the pressure that may be developed in the cylinder and, if I remember rightly, you said you would explain it to me when we have a lesson on the brake cylinder.

Instructor.—Yes, you are right, I did say so and I will now endeavor to make it plain to you. Auxiliary reservoirs and brake cylinders are made of such proportional sizes that an auxiliary reservoir with 70 pounds pressure will equalize into a cylinder with exactly an 8-inch piston travel at 50 pounds by a service application of 20 pounds reduction. Should the piston travel be less than 8 inches, then there will be less space to fill and they will equalize at a higher pressure than 50 pounds. On the other hand, should it travel more than 8 inches the space to fill will be greater and they will equalize at a lower pressure than 50 pounds. For illustration, with 4 inches travel they will equalize at about 56 pounds, and require an application of about 14 pounds reduction, whereas with 12 inches travel they will equalize at about 43 pounds pressure, and require an application of about 27 pounds reduction. With the same piston travel the pressure developed with a 10-pound reduction will be about 40 pounds and 6 pounds respectively. From this you will see that piston travel, or the space that the air in the auxiliary reservoir must fill, is a very important factor in the developing of pressure in the cylinder.

Student.—I understand that the auxiliary reservoir remaining the same size, and the space in the cylinder to be filled with air being changed by the piston

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travel, is the same as the piston travel remaining constant and changing the size of the auxiliary reservoir, which I can plainly see will vary the pressure that may be obtained in the cylinder.

Instructor.—Your understanding is correct. What pressure then must be developed in the cylinder by a service application to obtain full power of the brake?

Student.—50 pounds.

Instructor.—What pressure by an emergency application?

Student.—60 pounds.

Instructor.—What piston travel will give these pressures?

Student.—8 inches.

Instructor.—Then with less than 8 inches travel more power than is designed will be developed?

Student.—Yes.

Instructor.—And with more than 8 inches travel less power than is designed will be developed?

Student.—Yes, sir.

Instructor.—Will much, if any, brake power be obtained if the piston strikes the cylinder head?

Student.—No, sir; I should think not.

Instructor.—How can the piston travel be adjusted?

Student.—By taking up the brake connections.

Instructor.—What must be taken in consideration when adjusting the piston travel on a tender with the brake beams hung above the springs?

Student.—I do not know, I am sure.

Instructor.—With the beams hung above the springs the relative position of the shoe to the wheel is changed by the load varying, they being at their lowest point when the tender is loaded with coal and the tank filled with water, and at the highest point with no coal or water. Should the connections be taken up on a loaded tender so that the shoes just cleared the wheel they would be forced hard against the wheel when the tender became nearly empty. Therefore, when adjusting the piston travel on a tender the load on the springs must be taken in consideration, with beams hung above the springs.

Student.—I understand from your explanation that with beams hung below the springs the load will not change the relative position of the shoe to the wheel and, therefore, it is not to be considered when adjusting the travel with beams so hung.

Instructor.—That is right. How can the piston travel be maintained at exactly 8 inches?

Student.—I do not know.

Instructor.—This can only be accomplished by the use of a slack adjuster, which will automatically adjust the connections as the shoes wear.

Questions and Answers

Train Rules and Train Practice.

Answers by H. A. Dalby.

77. Form F.—"Under American Railway Association Rules, No. 28, eastbound, superior direction, is released at A as 'No. 28,' Division extends from A to J. At C receives order No. 1 as follows: 'Engs. 70, 71 and 72 will run as 1st, 2d and 3d No. 28, C to G.' Engine 72 was on regular 28 out of A. At G engines 70 and 71 are run as extras G to J, but engine 73 is at G loading a train of stock. This train gets ready to go and order 2 is put out: 'To C and E Eng. 73 and No 28. Eng. 73 will display signals and run as first No. 28 G to J.' Is this proper or should it have read otherwiise?"—*C. W. F., Chadron, Neb.*

Answer.—From a ruling of the American Railway Association in reply to a similar question, we understand that engine 72, having left the terminal as "regular" No. 28, would be authorized, in the absence of further orders, to proceed from G as No. 28. The second order was addressed to engine 73 and No. 28 and is according to the first example under Form F. The explanation to this form states that "Each section affected by the order must have copies, and must arrange signals accordingly," so our understanding would be that the order is all right.

We have mentioned before that the rules governing Form F are not explicit, the intention being, we suppose, to allow each road to provide the details by additional rules or by instructions to those concerned. We think, however, that our understanding of this case is warranted by the ruling to which we refer.

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78. Whose Fault?—"There is a rule on this road that when a train overtakes another, that if the leading train has rights or or-

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ders to proceed and the following train has not such rights or orders, that the following train can take the orders or assume the rights and go ahead of the first train. There was a case here where No. 24, a second class train, had orders to meet extra 64 west at F and meet extra 66 west at G. There is a yard at G and extra 64 had some work there and while they were there extra 66 came along behind them. They had no work and could go right along, so they arranged with the conductor of extra 64 and took his orders and went to F to meet No. 24. This happened west of the station and a little later the engine of the first extra (64) had to go back to the station for water. The operator reported to the dispatcher that extra 64 was still there, and then the dispatcher changed the meeting point between No. 24 and extra 64 from F to G. The engineer signed the order and of course the operator and the dispatcher thought that was all right. But extra 66 went along to F and came near colliding with No. 24. Everybody seemed to be acting according to rules and yet an accident was possible."—*W. B. J., Pittsburg, Pa.*

Answer.—Perhaps every one thought that he was complying with the rules, but the fact that an accident was possible makes it evident that either some one failed to adhere to rules or else the rules were defective. The trouble evidently lay in the fact that the conductor of extra 64 made the arrangement with extra 66 and allowed it to precede him to F while his engineer did not know anything about it. The question might also be asked if the dispatcher was justified in accepting the signature of the engineer as a hold on the train, but it would appear that this was sufficient, especially if it were the rule for the engineer as well as the conductor to sign for orders. We should think that a rule of this kind would require that the train passing the leading one should either exchange orders with both conductor and engineer or else know that both understood the situation.

* * *

79. **Combination Order.**—"Please give me your opinion on the following orders. Bass Creek is west of Edgemoor:

"Order No. 35.

C. & E. Eng. 86.

Eng. 86 will run extra Edgemoor to Bass Creek until 6 p. m. and has right of track over No. 50 eng. 47 and return to Edgemoor ahead of No. 50 eng. 47.

"Bass Creek is a blind siding where there is a water tank.

"On this order could No. 50, a first class train, leave Bass Creek at 6 p. m. if extra 86 had not arrived? Should extra 86 leave a man at Bass Creek to notify No. 50 that they had arrived and left, or could No. 50 leave Bass Creek until they knew the extra had left ahead of them? Bass Creek is not a telegraph station. Suppose extra 86 gets another order as follows:

"Order No. 36.

C. & E. Extra 86.

Eng. 86 will run extra Edgemoor to Bass Creek until 8 p. m. instead of 6 p. m.

"Would they still have right of track over No. 50 from Edgemoor to Bass Creek?"—*W. C. H., Ottawa, Kas.*

Answer.—These orders each contain a clause which is not authorized by the Standard Code in the sense in which it is used. We refer to the time limit. We suppose this limit refers to the run from Edgemoor to Bass Creek and that after 6 p. m. (according to the first order) the order to run extra in that direction is dead. If the men on the road from which the question came understood it that way, we should say that No. 50 could leave Bass Creek at 6 p. m. whether the extra had arrived or not, *so far as that part of the order is concerned.* There is another part, however, which says that the extra will run ahead of No. 50 Bass Creek to Edgemoor, and a strict compliance with this clause would require that No. 50 should know that the extra had preceded it from Bass Creek. Unless the extra was there and could be seen by No. 50, the only way that this information could be obtained would be to leave a man to notify the latter train. It is probable that on most roads this point would not be considered of the highest importance, and perhaps on some, No. 50 would proceed from Bass Creek regardless of whether the extra had gone ahead or not, only looking out for them in case they had.

On receiving the second order, as the time limit clause is not "Standard" we are unable to say whether the extra would still have right over No. 50 from Edgemoor to Bass Creek or not. The officers of the road would have to decide that. In the absence of special instructions we should not assume that such right was conferred.

This is another instance of a poorly worded order and shows how complications are more than likely to arise. If the extra reached Bass Creek for No. 50 and No. 50 saw it leave there, it might be all right, but if it failed to do this, we have seen the possible result. We suggest that the order be put in this form:

Eng. 86 will run extra Edgemoor to Bass Creek and from Bass Creek to Edgemoor ahead of No. 50 until overtaken. No. 50 will wait at Bass Creek until 6 p. m. for extra 86 west.

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By making the return trip "ahead of No. 50 until overtaken" it relieves the latter train of ascertaining whether the extra has gone or not, and permits the extra to run ahead of No. 50 or follow it, as circumstances may determine.

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80. Sections Not Specified.—"Train No. 43, second class, going west receives order No. 1 at C. T. Tower to meet No. 38, same class going east at Birch. No. 38 has absolute right of track over train No. 43. Upon arrival of No. 43 at S. X. (an intermediate station) it receives order No. 2 which reads as follows: 'Train No. 43 and 1st No. 38 will meet at S. X. instead of at Birch.' Now I would like to know if train No. 43 can proceed to Birch for 2d No. 38 without receiving another order, or does order No. 2 supersede order No. 1."—*W. A. R., Keating, Pa.*

Answer.—We believe it is the rule on almost every road that when a train is run in more than one section each section shall be specified in train orders. This is required whenever it is known how many sections are to run. If, however, for any reason, they are not so specified, the mention of a train includes all sections. If this is the practice on the road from which this question came, we should say that a strict construction of the rules would permit No. 43 to go to Birch for 2d 38, but inasmuch as it is an unusual method of handling trains we should not want to go, if we were running No. 43, without being satisfied that we were right.

Several unanswered questions might enter into the case. When order No. 1 was issued was there more than one section of No. 38? If so, why did not the order specify that No. 43 would meet 1st No. 38 or 1st and 2d No. 38, instead of saying "No. 38"? Assuming that there was but one No. 38 when the meeting point was made at Birch, and only one section signed for the order, what assurance have we that 2d No. 38 is going to wait at Birch for No. 43, inasmuch as the 2d section was apparently created after order No. 1 had been issued? The order is not strictly in accord with the Standard Code in that the first order directed No. 43 to meet No. 38 at Birch, which indicated only one section. The second order directed it to meet *1st* No. 38, which indicated that there was more than one section. The train to be met at S. X. had a different name from the one to be met at Birch, therefore the term "instead of" did not strictly apply.

We should suggest this form of order in case additional sections of No. 38 were to be run:

Order No. 1 is annulled. No. 43 will meet 1st No. 38 at S. X.

We think, considering all things, that it is clearly a case of doubt and we should take the safe side. We think such orders as these justify us in repeating the advice which we have often offered to dispatchers with regard to issuing orders which may not be clearly understood.

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Locomotive Running and Repairs.

Answers by G. W. Wildin.

[In the second column on page 771 of the December number, in Mr. Wildin's answer to Question 42, a formula was given as follows: d2×S×P—D. This should have been $d^2 \times S \times P - D$. The cause of this error was the failure of the compositor to distinguish the difference between d2 and d^2, and the failure of the proofreader to notice the error. Such errors are alike annoying to the Editor and technical contributors.—Ed.]

43. Formula for Calculating Horsepower of a Locomotive.—"In the October number of our MAGAZINE, under the heading 'About Locomotives,' question No. 27, a formula was given for calculating the horsepower of a locomotive. Kindly advise whether the area of one or both pistons is to be figured in this formula."—*A. B. R.*

Answer.—The formula $\frac{\text{PLAN}}{33000}$ gives the horsepower developed in one cylinder of a locomotive only. But the formula as given in the October issue of the MAGAZINE took into consideration both cylinders as follows: $\frac{\text{PLAN}}{33000} \times 2 = \text{horsepower}$, In other words, it is assumed that the work done in each cylinder of a locomotive is the same, Using the first formula above, we get the work done in one cylinder; then if we multiply the result by two, as in the second formula, we get the work done in both cylinders, or the total horsepower.

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44. Formula for Calculating the Tractive Power of a Locomotive.—"I would like to have given, in the department 'About Locomotives,' a formula for calculating the tractive power of a locomotive in pounds."—*A. B. R.*

Answer.—The universal formula for calculating the tractive or pulling power of a locomotive is as follows: $\frac{d^2 \times S \times P}{D} = T$, in which d represents the diameter of one cylinder in inches, S the length of stroke in inches, P the mean effective pressure in pounds per square inch, D the diameter of the driving wheels in inches and T the trac-

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tive power. All of the factors given in the formula are known, except P; this is usually taken as 85 per cent. of the boiler pressure when figuring the maximum tractive effort, and at speeds ranging from one to ten miles per hour.

Example:

What tractive power will a locomotive develop having the following dimensions, etc.:

Diameter of cylinders, 20 inches.

Length of stroke, 28 inches.

Boiler pressure, 200 pounds.

Diameter of driving wheels, 69 inches.

$$\frac{20^2 \times 28 \times 85\% \text{ of } 200}{69} = \text{T.}$$

$$\frac{400 \times 28 \times 170}{69} = \text{T.}$$

Tractive power = 27,594 pounds.



45. Giving the Valves on a Locomotive Lead.—"Can you or can you not give the valves of a locomotive lead by setting the eccentrics at right angles to the crank pin and lengthening the blades the required amount, the crank pin being either on the forward or rear center? If not, why not? We know the books tell us that lead can be changed only by adjusting the eccentrics on the axle, but since the question is in dispute, would like your opinion."—*A. H. W.*

Answer.—The books are correct. You can not adjust valve lead on a locomotive by changing the length of the eccentric blades. You can, it is true, with the crank pin on forward center and the eccentric on top quarter, so lengthen the forward motion eccentric blade as to give the desired 1-32 in. or 1-16 in. port opening, but when the driving wheel revolves one-half revolution the eccentric will be on lower quarter. In this position it will be necessary to shorten the forward motion blade in order to obtain 1-32 in. or 1-16 in. opening of the back steam port. In other words, if we adjust the eccentric blades so as to obtain lead for the front steam port when crank pin is on forward center, we blind the back port when the crank pin is on rear center. All that we can accomplish by adjusting the blades is to get what we call a "square" engine, and nothing more.

46. Generation of Steam in a Locomotive Boiler.—"How is steam produced in a locomotive boiler?"—*W. B. C.*

Answer.—Steam is produced in a locomotive boiler the same as in an open vessel—by a boiling process; the only difference being, in one case the steam when generated is confined and is capable of being used to do effective work, while with the open vessel the steam as it rises from the water escapes into space. The fire upon the grates causes intense heat in the firebox and tubes, and as one side of the firebox sheets, and also the outer surface of the tubes, is exposed to water, a boiling action is the result, the steam rising to the surface filling that portion of the boiler not already filled with water.

47. How Steam in a Locomotive's Cylinders Draws a Train.—"How is steam applied in a locomotive to draw a train?"—*W. B. C.*

Answer.—Steam is generated in a locomotive boiler and stored as explained in question No. 46. When it is desired to start a train the throttle valve is lifted by pulling on the throttle lever. This action allows the stored steam to escape from the boiler through the throttle valve opening to the dry-pipe, thence through the dry-pipe and steam pipes to the steam chests. As the valves move and uncover the steam ports, the steam in the steam chests forces itself into the cylinder, entering between the cylinder head and piston, forcing the piston away from the head, thus transmitting motion to the crank pin, causing the wheels to turn and the train to move.



48. Pounds of Water Evaporated per Pound of Coal.—"How many pounds of water should be evaporated per pound of coal in a locomotive?"—*W. B. C.*

Answer.—The number of pounds of water that may be evaporated per pound of coal in a locomotive boiler depends entirely upon the quality of the coal used. With a fair quality of bituminous coal an evaporation of 7 to 8 pounds of water per pound of coal is considered good locomotive performance. With anthracite or hard coal the evaporation is even lower than the above, and would be placed between 6½ and 7 pounds.



49. Effect of Bad Joints in a Locomotive Front End.—"What is the effect of bad joints or leak about the smokebox, also a leaky pipe inside the smokebox?"—*W. B. C.*

Answer.—The effect caused by either of the above defects is always a bad steaming engine. When the exhaust steam escapes from the exhaust nozzle through the stack to the atmosphere, it carries with it a considerable portion of the gases in the front-end, thus producing a partial vacuum in the smokebox. This vacuum, if all steam joints and front-end joints are

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tight, will be filled with gases from the firebox, which in turn are replaced with other gases generated by further combustion, this further combustion being made possible because of fresh air passing up through the grates. Now, if we have leaky joints in the front-end, or the steam pipe joints are leaking, the steam from the leaky pipes and the air from outside the smokebox will take the place of the gases removed by the exhaust jet and no room is left for the gases from the firebox, consequently no air can enter through the grates and combustion practically ceases.

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50. Staying Firebox Sheets to Withstand Steam Pressure.—"How are firebox sheets braced to withstand the steam pressure?"—*A. B. C.*

Answer.—The side sheets and door sheet, also the lower portion of back tube sheet, are secured by staybolts, usually spaced about 4 inches apart. The door sheet is stayed to the boiler head, the lower portion of the tube sheet is stayed to the throat sheet, and the side sheets to the boiler side sheets. The crown sheet is braced in two ways—one called "radial stay" and the other "crownbar" bracing. "Radial stay" implies that long staybolts are used to hold crown sheet and roof sheet together, and are located radially with the curve of the roof sheet. "Crownbar" staying means that heavy bars are placed across and over the crown sheet with ends resting on the side sheets of the firebox, and the crown sheet is secured to these bars by means of bolts.

See October issue of MAGAZINE, Questions 8 and 9, for definition of a crownbar and staybolt, respectively.

♦ ♦ ♦

51. Superheated Steam.—"Please explain the process of superheating steam for use on a locomotive; also its advantages and disadvantages."—*R. H. C.*

Answer.—The superheating of steam to effect economy in locomotive performance is not a common practice on American railways. The subject of superheating is being studied to a considerable extent in European countries, and a number of superheaters have been applied to locomotives on the Prussian State railways. In the main, superheaters as applied to locomotives consist of a coil of pipe of considerable length, located in the smokebox and through which steam from the throttle valve must pass on its way to the steam chests. This coil of pipe, or superheater, is kept heated to a very high temperature by exposure to the hot gases passing through the tubes. It is claimed that steam from a boiler pressure of 175 pounds passing through one of these superheaters will be increased in temperature about 250° F., which would mean about 25 per cent. increase in the horsepower of the boiler. The advantage to be gained is in high temperature of steam entering the cylinders, allowing greater expansion with less loss of energy due to condensation. It is claimed that by superheating steam in a locomotive as great or greater economy can be had than by compounding.

The disadvantages encountered in superheating are the cost of construction and maintenance of the superheater and the difficulty experienced in lubricating properly the cylinders and valves because of the high temperature which they attain.

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52. Diameter of Driving Wheels; Their Effect on the Speed of a Locomotive.—"Why can an engine with large drivers run faster than one with small drivers?"—*R. R.*

Answer.—The locomotive with the large driving wheels is carried over a given distance with a great many less strokes of the piston and revolutions of the drivers than the locomotive with smaller wheels. For instance: An 85-inch driving wheel makes 237 turns in a mile, while a 60-inch wheel makes 336, a difference of 99 revolutions or about 42 per cent. Understand, this means an increase of coal and water consumption of about 42 per cent., as well as the same increase in piston speed, and tendency of bearings to heat.

We might put this matter in another way, and say the locomotive with small drivers runs faster, but does not cover distance so fast.

Besides the tendency of bearings to heat on locomotives with small drivers, when driven at a high speed, there is another serious feature—that of high piston speed which means non-effective steam consumption and distribution.

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Comfort one another,
For the way is often dreary,
And the feet are often weary,
And the heart is very sad;
And there is heavy burden bearing,
When it seems that none is caring
And one-half forget that ever we were glad.
Comfort one another
With the hand clasp close and tender,
And the looks of friendly eye.
Do not wait with grace unspoken
While life's daily bread is broken.

—Anon.

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Jennie

By H. M. Orton

AWAY out in the very heart of the great staked plain, where the cold wind in winter, that sweeps down from the Northland, moans around it, and the sun of summertime shines bright and hot, lies the little station of Rogers. And yet, small as it is, Rogers is in one way an important town on its line of road, for the weary traveler, worn out and dusty from hours of riding, feels a sense of relief when the brakeman on the express, which once a day creeps over this level plain, calls out, "Rogers! twenty minutes for dinner."

And as each in their turn step onto the platform, they see, besides the depot, only one lonely house in sight, and then they hurry in and seat themselves at the long tables filled with tempting eatables.

At the time I write one of the tables was usually waited on by a girl, slender and fair, with hair of the softest brown worn loose with only a bow at the back. Her eyes, like her hair, were brown, and in them one could see a longing look for something that the heart had hidden for years. Her voice, though uncultured, had about it that soft, sweet southern accent one loves to hear.

The road men called her Jennie, while the cowboys who came riding over the plain shortened it to "Jen," and vied with the road men for her favors. But to only one, Terry Donavan, did she show any preference, to the others she showed no partiality whatever, but moved along in her simple duties as silent as the great lone plain around her.

But one day when the express stopped for dinner and the passengers came hurrying in, she saw a young man, tall and dark, dressed in simple black, who smiled and thanked her as she handed him his coffee and then watched her continually as she moved about the room. And then, when the train went puffing away toward the southwest, it left him standing on the platform gazing after it till it disappeared in a cloud of sand and smoke over a swell in the plain.

An hour later, as she went out on the platform, she saw him walking down the track with his hands behind him, seemingly in deep thought. He turned as he noticed her, and came to where she was standing.

"I have been wondering," he said, "just what life must be out here on this great rolling plain."

"Just what you see," she replied, "nothing, nothing, nothing to look forward to, nothing to look backward at, only a long stretch of years of nothing. Today comes and goes, then tomorrow will come, and like today it will contain nothing."

"But it is home," he said, "and where home is, there the heart is."

"Yes," she answered, "it is home, the only one I have ever known, but my heart is not here, for the Master who made all never made a more lonely home than this. But," she continued, "I've heard the road men say that away beyond the edge of this soap plant plain is another country, where all is gay and fair, where men and women are learned, where they have colleges and churches and there is always someone that knows something to talk to, and I have longed so many times that some day I might leave this lonely place behind me, and go 'way on the express to that other land and taste its joys. The one thing in this world I most long for is that I may some day learn as others who go through here have learned. Do you live back there?" she asked.

And he answered, "Yes, I am a minister of the gospel and my home is in Chicago." And then word by word he drew out her life's story.

"I am eighteen years of age," she said; "my mother died soon after my birth, and my father gave me to these people. They have brought me up and I have worked here day after day, receiving for what I have done just what I eat and wear. They have educated me only as far as they know; beyond this my knowledge of the world is a blank. They won't send me to college for they need me here to drudge. The common education I have received is not enough for me. I desire to learn more of the great rushing world that lies beyond this dreary plain."

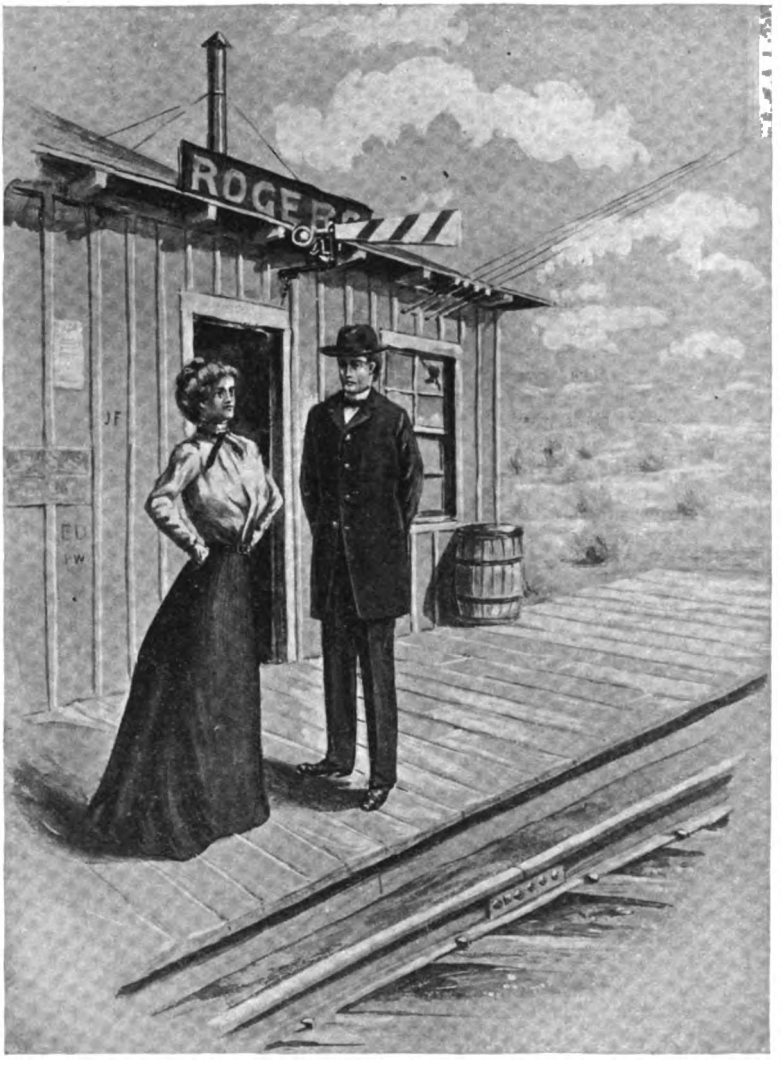
In all his five and twenty summers,

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Rexford Brooks had never heard a story that so appealed to his heart, as the one he listened to from the lips of this simple child of the plains.

That night, while the soft southern moon was casting its mellow rays over the silent prairie, they walked together up the track, and as a child will listen to its parent, she listened, as he told her the story of the Master and the message he had left to the world.

"God rules this world," he said, "He holds us all in the hollow of His hand, He guides us, He shapes our destiny, and He is near us tonight out here on this barren plain as though we were within His house of worship. He is an all-wise father, He does all for the best, and though your life has been a lonely one, you may be sure it has not been lived in vain. Somewhere its influence has been felt, and in some way the world is better



"I have been wondering," he said, "just what life must be out here on this great rolling plain."

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for your having lived. When I get back to Chicago I will tell my sister of you, and if we can make any arrangement so you can be placed at school, I will come for you and take you to her home. So, Jennie," he said, "until you hear from me, live on as you have lived, remembering that at all times God is merciful and just, and if it be wise for you to leave He will plan it so; if not, then live on as you are living, make the most of life in the way of good, and be contented that, lonely as you may be, your soul is as pure and free from sin as when you lay a helpless babe in the arms of your dying mother."

Then he handed her his little pocket Bible, telling her it contained Christ's message to the world, that His way was the only way, at all times He was merciful, He was just.

She took the little book and placed it on the stand in her room. It was hers, Rexford Brooks had given it to her; she was happy, so happy, she leaned out of the window and murmured, "God is merciful, God is just."

They stood on the platform next day as the east-bound express was about to pull out, he took her hand in his and said, "I will write to you as soon as I get home and I will pray God to help us in our plan. God bless, you, Jennie, God bless you." And a moment later he was waving her farewell from the rear platform, while with tears in her eyes and a load on her heart that would not lift, she watched the train till it disappeared over the plain to the eastward. Of all the long lonely days she had ever known, the most lonely of them all was the one on which she bade Rexford Brooks good-bye.

The next morning as she stood in the door, looking off over the plain, she saw away to the southwest a faint cloud of dust. She watched as it drew nearer and nearer, and in a short time made out a horse and its rider. It was Terry Donavan, the one cowboy on all the range she had ever admired. Admired him because he was brave and true to all whom he loved. All cowboys sow their wild oats, and years ago Terry had sown his. He had "killed his man" in Las Vegas, and in a drunken row in Roswell had shot Mexicans, right and left. But this was years ago, and now he had settled down and was living at peace with his fellowman.

Many was the time she and Terry, arm in arm together, had walked up and down the track, and once he had asked her to be his wife, and she had told him that she had never felt in her breast that which he had called love.

"But," she had said, "if I ever do, Terry, I'll tell you, maybe, some time I will know more about it and then I will answer you." But that was months ago, and now Terry was by her side again, smiling as he touched his broad-brimmed hat, and reached out his hand.

"Well, Jennie," he said, "we are driving the cattle down to the corral today and tomorrow we start cutting 'em out, so I broke 'way from the bunch and rode over to chat a bit with you, and see if you had a word of love to say to me and that you will be my wife."

He still held her hand and the gray eyes of the cowboy were looking into the brown ones of the girl before him.

"Terry," she said, "let us walk up the track a ways, I have something to say to you," and they turned and walked away side by side.

"Terry," she said, "I thought more of you than anyone I ever knew till yesterday." And then she told him all, told him how Rexford Brooks had come in on the express, and how, without any excuse whatever, he remained behind when the train went puffing away. Told him of the moonlight walk and of the story he had told her of the Great Shepherd above, and how when the train was about to start, he had taken her hand in his, and, as he bade her good-bye, asked God to bless her. "And some day, Terry," she said, "he is coming back again and I'm going with him to his sister's home in Chicago. And I am going to college; just think of it, Terry, after all these years of waiting, that which I have longed for most of all is to be realized. And, some day, Terry, I will come back here looking as grand and fine as some of the ladies that go through here on the express. No, Terry, I can not be your wife, it would be doing us both a wrong. It would not be right to give you my hand when my heart is over the plain towards the morning sun. It wouldn't be right Terry, it wouldn't be right. But you have always been my friend, and as long as I live and wherever I go I shall have only friendly thoughts of you. I'm sorry, Terry, but it wouldn't be right to marry you thinking as I do. It would be a sin, Terry, it would be a sin!"

They stopped, and as her dress brushed the leaves of a soap plant, a jack rabbit sleeping there started up and bounded away. She hardly knew the voice that answered her.

"Jennie," he said, "Jennie! I really

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didn't expect anything like this. I never have met anything in this world but disappointment; but this, Jennie, is the bitterest one of them all. Maybe it is wrong Jennie, maybe it is, to think that a slip of a girl like you could ever love a great rough cow-puncher like me. Maybe it is, maybe it is. But, Jen, I have known you ever since you were a little one in short skirts, I have watched you grow up and bud and bloom into the fairest flower that ever grew on this great plain. Many and many a night out on my lonely watch I have laid on my blanket with only heaven's blue dome and the stars above me, and thought and dreamed of you, and longed so many times for the day to come, when I could take you to my mother in "Vegas" and say, "Mother, this is Jennie, my wife, as you have loved me love her. I know I'm only a cowboy, Jen; I have never read the Bible; I have never lived in the fear of God, but as a great strong man can love the woman he would make his wife, I have grown to love you. Maybe I've done wrong, maybe 'tis a sin, but if God puts angels on earth to live, and man seeing them loves them, ought the sin to be placed on the man? Ought it, Jen, ought it? And now, Jen, when you get back there where you think you will be so happy, should things turn out different than you expect, and you need a true friend to help you in any way, remember that back on the great staked plain lives one that will go to the world's end for you. If ever you need help, ask for it and the cowboy who has loved you so long and so well will come to you." They stopped as they came to his horse, he took her hand in his, their eyes met.

"Jennie," he said, "may the Master, who you say rules all, guide you ever onward. Good-bye little girl, good-bye," and then he was gone.

Away to the southwest of Rogers, miles and miles over an almost deserted plain, close to the banks of the Rio Pecos lies the river stockyards. There is not a single house in sight, but in the distance to the south can be seen at times a cloud of smoke that shows where Roswell, the prettiest little city in the Pecos valley, lies. And away to the westward, fifty miles or more, looms up Mount El Capitan, standing like a sentinel, guarding this Pecos valley, which man, by turning on water, has made to blossom like an Eden.

The road built the yards at this particular point because water was near and they could be reached handily by the stockmen who, for hundreds of miles around, herded great droves of cattle and sheep; and here on the day following his visit at Rogers, we again see Terry Donavan.

Thousands of cattle are in the pens and in droves near by; while the men are busy at the chutes in cutting out and loading. Some of the men in the outfit have brought their families along, and, from a cluster of covered wagons to the east of the yards, can be heard the sound of children's voices.

Heedless of where they were going, two of the little boys have, unseen, climbed the fence and are running in play up and down one of the alleys or runways. Suddenly there comes a great crash. The cut out steers in the big pen have broken the fence and are stampeding down the runway. They were close at hand when the boys see their danger. One of them runs to the fence and climbs, the other gives a startled cry and stands as though paralyzed. But over the fence a man bounds, and catching the little one in his arms, lifts him high above his head and places him on the plank walk on the top of the fence. Then the steers struck him; he had started to climb, but too late; they bore him down and tramped him beneath their hoofs, and after they had passed over him, the cowboys picked him up and tenderly carried him back to the wagons. and in a sorrowful group they gathered around him, for in the presence of death, the cowboy is as tender as a woman. Slowly the sands of life were ebbing, he knew his race was run, he knew that in a short "little while" his soul would solve the great mystery of the hereafter. His lips moved and those nearest caught the name "Jennie." They knew whom he wanted, and over the wire to Rogers sped the message, "Terry is dying, asking for you. Come."

She was standing in the kitchen door when the operator read her the message. Her face turned deathly white, the frail form tottered, and but for the man's strong arm she would have fallen. But in a moment she calmed herself and said:

"Terry dying, dying, wants me to come. Dying, dying, poor Terry, poor Terry. And the express has just gone, no train till tomorrow, what will I do, what can I do?"

Then she thought of her horse; she would ride it to Benton, halfway; change her mount and finish the ride. And fifteen minutes later she was speeding over the prairie as fact as her pony could carry her.

Terry was dying, he had sent for her,

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he had loved her and asked her to be his wife; she had told him "No," and sent him away with a broken heart. And still, dying, he had sent for her. On and on over the lonely prairie sped the little "bronco." On and on and on, and just as the sun was going down behind El Capitan, she reached Benton. She made known her wants; her saddle was transferred to another horse, and with the loss of but a few moments she was again flying over the plain toward the place where Terry Donavan, surrounded by his cowboy friends, was slowly dying.

"We have sent for her," they told him, "and the operator has wired back that she left there at three. So if she rides fast she will be here by midnight."

"Coming," he murmured, "coming. Oh! Jennie, Jennie, may the great God you speak of be ever your guide. Dear little girl, dear little girl, will I see you again, will I see you again?"

Then he became quiet and they knew he was sleeping. They watched him and once, when he smiled and his lips moved, they knew he was dreaming, but of whom, they wondered. Was it the gray-haired mother in Vegas who knew not her boy was dying, or was it of the brown-eyed girl, who even then was speeding towards them across the moonlit plain as fast as a Texas mustang could carry her. But near midnight he roused and reached out his hands to those nearest. "All in, boys," he said, "I'm going, I'll be gone when she gets here, I won't see her again unless, u-n-l-e-s-s—." There was no movement of pain, nothing to indicate that he was suffering, but as quietly as an infant sinks to rest in its mother's arms, the soul of the man went out to the great beyond.

Terry Donavan, the noblest cowboy of them all, was dead. In his going the world lost a hero and Heaven gained one. He met nothing on earth but disappointment, but in Heaven he will receive his reward, "For in as much as ye did it unto one of my little ones, ye did it unto me."

An hour after he had passed away, there came across the plain the thud of a horse's hoofs coming in a swinging gallop, and in a few moments more a dark gray bronco, bearing upon his back a frail bit of a woman, stopped in the glare of a smoldering fire.

They helped her dismount. She looked into the tear-stained faces of those around her, then at the still form on the blanket, and said, "Too late, too late?" They nodded, and she went to where he was lying and pulled down the blanket that covered the dead face. She knelt down and placed the head, cold and stiff, in her lap.

"Dead, dead. I tried to get here, Terry, I tried to get here. Oh Terry! Terry! why did they take you, why did they take you?" And then for a long time she sat and looked at the dead face of the man that, living, had loved her as few women have been loved. "I might have said yes; it wouldn't have hurt me; he might have died easier. Poor Terry, poor Terry."

The golden sun was peeping over the eastern plain before she moved his head from her lap and covered the blanket over it.

"Dead," she said, "dead; and God is merciful? God is just?"

They tore rough lumber from the stockyard fence and made him a coffin. She heard every blow of the hammer, but said nothing. And, when it was finished, they took the still form and placed it into it. It was much too long, and the boards they covered it with came so close to the dead face; but then he was dead, what did it matter? Close to the river bank they dug a grave in the red sand, shallow, so shallow, it seemed. And there they buried him out on that great sweep of prairie where nothing but the soap plant and the bunch grass will ever grow near, where no human being but the cowboy or the herder will ever pass, alone, all alone, with nothing to mark his resting place, on the banks of that treacherous river, sleeps Terry Donavan, a cowboy hero.

As soon as it was over she asked for her horse, and they asked her to stay till the next day's express.

"No," she said, "I want to be alone; I will ride back." She drank some coffee, thanked them for their kindness to Terry and herself, then mounted and rode away. The foreman looked after her till only a cloud of dust showed where the bronco, with untiring strides, was speeding home. Then he turned to his men.

"Poor little girl, poor little girl!" he said.

It was midnight by the hands of the little clock on the kitchen shelf when she reached Rogers. She went up to her room, and taking the little Bible in her hand, knelt by the window and looked off over the plain.

"Dead, dead! Terry dead, and he told me God was merciful. God was just!"

And then a month drifted by, and nothing came from Rexford Brooks. Day after day she would look off to the eastward for the first glimpse of smoke that told that the express was coming. Day after day she stood in the door and watched as one by one the passengers got off and came hurrying in. But the one she longed to see was not among them.

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Day after day she scanned the few letters the mail clerk left, but the one she waited for did not come.

And so month after month drifted by. Reader, do you know, can you realize what even a month means out on that wide and dreary plain?

Not a house, not a tree, not a sign of civilization for miles and miles; nothing but one dead, level tract of land stretching away and away. Can we know what she suffered; can we know the heart aches, the bitter tears, the sleepless hours?

Night after night she had taken the little Bible he had left her, and looking from the window up at the bright stars shining down from heaven, prayed that God would send him back again; that some day her hopes might be fulfilled, and that she might learn as she longed to of the world. But one day, after she had nearly given up hearing from him, Charlie, the mail clerk, handed her a letter as he passed her by one of the tables, saying as he did so, "I did as you asked me to, Jennie, I kept it out from the others. I guess it's the one you've been looking for; it's from Chicago. She took it and after the meal was well under way, she walked to the window near where Charlie was sitting, and opening it read:

Miss Jennie Burton,
Rogers, Texas:

Dear Young Lady—My brother Rexford was taken sick on the train soon after leaving your place, and after three months of sickness he died. He spoke often of you, and asked God in prayer to care for you and comfort you. He knew that he was going home, and said that I was to tell you that God ruled all for the best, and though he could not meet you again in this world, he hoped some day to meet you in that home where only those whose souls are pure can ever enter.

MILDRED BROOKS.

The face the mail clerk saw when she finished reading was ashen white. The hand that held the letter trembled; she turned and without a word tottered out of the room.

That night she sat in her little room, looking from the open window out over the plain. "Dead!" she said, "dead; never to come back, never to come back! The one I thought most of in all this wide world! Why was he taken? Why was he taken? Why was I left to suffer like this? Why did they not let me die when my angel mother died? Why? Why? And Terry is dead too. Brave, noble Terry. None left now that loves or cares for me. Dead! The truest friends I ever had. Dead! And God is merciful, God is just!" She knelt, and reaching out toward the star-decked heavens cried, "Have pity! Have pity!"

A brakeman on a "wild" stock train, speeding by, seeing her kneeling there in the moonlight, waved his lantern and hallooed. Then turning to the shipper, standing by his side said, "Poor little girl, poor little girl!"

The Putitoffs.

My friends have you heard of the town of Yawn,
On the banks of the River Slow,
Where blooms the Waitawhile flower fair,
Where the Sometimeorother scents the air,
And the soft Goeasys grow?

It lies in the valley Watstheuse,
In the province of Letterslide;
That tired feeling is native there,
It's the home of the listless Idontcare,
Where the Putitoffs abide.

The Putitoffs smile when asked to insure,
And say they will do it tomorrow;
And so they delay from day unto day,
Till death cycles up and takes them away,
And their families beg, steal or borrow.

—The Australasian Budget.

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Arthur Graham's First Trip

By W. L. French

FROM the time I was old enough to have any idea about different occupations for men, I formed the idea that I would be a locomotive engineer, and I clung steadily to that idea until, finally, I secured a place as caller for engine crews in the roundhouse of the Hamilton & Northern Railroad, when I felt myself to be on the high road to success. I was only nineteen years old when I secured the place as caller, so I had two years ahead of me before I could hope to get on the road as a fireman. My knowledge of where everyone lived in the village of Hart is what got me the place, and I found out, after I had served a couple of years, that I was likely to keep the place as caller for the same reason that I had secured it.

Two or three young fellows were sent out firing, whom I felt that I should have gone ahead of, and I felt considerably vexed over the matter. Charley Brown, who was wiping in the roundhouse, boasted to me that he would go firing ahead of me, and that I was to stay where I was, on account of my being so valuable a man where I was, and so worked on my feelings that I had fully determined to quit before I would let him get any advantage over me.

It was the custom of the roundhouse foreman, when he needed a fireman, to promote the hostler's oldest helper to the position of fireman, and then place the next man he meant to promote with the hostler (or engine dispatcher, as he is called on some roads) to give him an opportunity to learn what he could about an engine before going in actual service as a fireman.

One day the foreman sent the man out firing who was helping the day hostler, and instructed me to go and tell Charley Brown to report to the hostler as his assistant. Instantly I rebelled. "I have been here much longer than Charley has, Mr. Jones, and I would like to have the place," I said.

"Well, Arthur, I don't know as we have any seniority in the house. Still I want to be fair and give every man a chance. It is not easy to get a good caller, and you are a good one. For that reason I have rather held you back, and would like to keep you where you are," replied the foreman.

"I thank you for your kind words," said I, "but I have desired for years to be an engineer. To succeed, I have got to get a start as a fireman. You know I commenced here with that intention. I could hardly afford, in justice to myself, to settle down to a life job of calling engine crews. I hope, Mr. Jones, you will give me a chance." My words had effect on him, for he asked:

"Who is there that I could get in your place who could do the work?"

"Jim Atkins!" I eagerly answered.

"Bring him here and we will see what he thinks about it. Perhaps I may be able to fix you out after all," he said kindly.

I was not long in getting Jimmie before the foreman and, as he and I had had a previous understanding, he readily undertook to do the work I had been doing, and Mr. Jones told me to report to the hostler. I felt greatly elated that I had made a start at my chosen calling, in spite of the difficulties I had encountered.

Charley Brown felt rather crestfallen at my success, but his spirits revived a few days later when he was made a helper to the night hostler. By the time he had worked a few nights he commenced to boast, almost every time he saw me, about how skillfully he worked injectors, knocked out fires, and handled the engines. This latter statement I rather doubted, but found out later, to my sorrow, that he did handle them occasionally.

Time went along, and I had become well versed in my new duties, when one day the foreman sent the caller to tell me to go out with Bill Everett on a freight engine to Crandall, 125 miles distant. The engine was already out of the house, waiting for a fireman, and it had been the need of getting a man at once that caused the foreman to put me on the engine in preference to one of he yard men, who were supposed to have more experience.

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My heart swelled as I climbed up on the big machine, and I felt that I had moved up another notch toward the realization of my hopes. I hardly took time to throw my clothes in the seat-box until I went up on the tank to take water, and then getting down in the cab I commenced to get things ready, as I had seen other firemen do. I felt some trepidation, as anyone would who is about to make a new venture, but one thing was in my favor; the engineer I was to go out with was one of the best-natured men on the road, and I felt that I should get along all right.

I never had any idea that an engine consumed so much coal, until I found myself compelled to supply one's demands. To be sure, I had heard firemen talk down at the roundhouse about how much coal their engines had burned on some trips, but I had charged up a good per cent. of those amounts to a fervid imagination; now, I found to my sorrow that they had been dealing in facts.

Bill Everett took much interest in showing and explaining to me how to do the work, but I found it decidedly hard work to keep the pointer up to the proper point and, after we had gone a distance that seemed about five hundred miles to me, and the engineer cheerfully informed me that we only had forty miles more ahead of us, I felt utterly discouraged. Bill evidently realized the state of my feelings, for he explained to me that nearly every new man felt as I did, that I was doing better than the average beginner, to keep my courage up until we got in and after a few trips everything would be all right, and the distance and work would both be easily bearable.

Influenced by his talk, and the sense of pride which the majority of men have in doing to completion what is undertaken, I went to work with renewed spirit, but I felt greatly relieved when the whistle sounded for Crandall, the division terminal. When we were called to start back at 2 p. m., the next day, I felt rested and prepared to start out with a much greater degree of confidence than on the preceding day.

Things moved along very smoothly until after we took coal at the first shed, and then my troubles commenced. The coal was of a very poor grade, full of slate and clinker material, and try as hard as I could, I was not able to keep the engine hot, and I got so worried that I felt like throwing the shovel back into the pit, taking my clothes and getting off the engine. Bill Everett laughed at my vexation, got down, took the shovel and demonstrated that he could not hold the steam up, and that the trouble was in the coal and not with me, and I took the shovel again, better satisfied with myself. We got some good coal at the next coaling station, cleaned our fire, and, after that things went along finely. Night had come on and as we pitched over a hill the engineer shut off the steam, for we were going as fast as it was safe to ride.

"When we reach the bottom of this hill, Arthur, we have a six mile limb to Hart, and then we are done," called out Everett, as he dropped the lever in the forward corner.

"Glad of it," I responded, as I climbed up on the seat behind the brakeman. "Tell me just before we get to the bottom so I can get her ready for the hill."

"All right," he replied, as I settled down to catch a moment's rest before the final effort that would complete the trip.

We were gliding along at a rate that plainly indicated to me that I would not have very much time to rest, when I heard a sharp exclamation from the engineer, followed instantly by the whistle of escaping air as the brake went into emergency. Over came the reverse lever, and there was a shrill shriek for brakes, all so quickly that I was all eyes and ears after the first move of the engineer, and hardly realized what was transpiring about me. Instinctively I looked ahead, and saw in the darkness two bright red spots rushing toward us.

"Get off!" shouted Bill Everett.

I had dropped down on the deck, hardly knowing what to do—everything had come about so quickly—but the brakeman, who, evidently, had been similarly placed before, literally fell off the seat-box and, knocking me against the coal gate in his wild rush for safety, sprang out of the gangway and disappeared in the darkness. The next second there was a crash, and all about me was noise and confusion.

I felt the engine check her speed as she struck some obstruction, then there was the crushing, grinding sound of breaking wood and iron, the rushing sound of escaping steam, and amidst it all I felt myself tossed up and thrown about, struck on this side and that, and finally cast—it seemed to me in my half conscious state—far away, and for a moment I lost knowledge of what was going on about me. Then my senses came back. Everything had grown quiet except the steadily lessening sound of escaping steam. I felt about me and found that I was lying on

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the ground, apparently free from any serious injury and not pinned down in any manner, yet all about me I could feel the wreckage, and there appeared to be no avenue of escape. I tried to work my way out, but in every direction I met some obstacle that stopped me and, as it was intensely dark, I only hurt myself in my efforts to get out. My only fear was that the wreck would take fire from the engine, otherwise I was safe enough, only having to wait until they should rescue me from the outside. So I settled down to wait as patiently as I could.

Soon I heard my name shouted by a voice I recognized to be that of my engineer. I answered him, and soon he was as near as he could approach to where I was. To him I explained how I was hemmed in, and he set to work with an ax and a shovel which he secured from the engine, to get me out, and in half an hour I stood beside the wreck and viewed the ruin wrought by the collision.

The rear brakeman had gone back up the hill to protect any following train, and the conductor, after helping the engineer carry the head brakeman, who had received a broken shoulder and a badly cut head in his reckless leap out of the gangway, to a place where he could lie comfortably, binding up his cuts, and being satisfied that I was beneath the wreck, went on foot to Hart to secure needed help.

The engineer and conductor had both believed me dead, and it seemed almost a miracle to me that I had not been instantly killed, as I stood and viewed the place where I had been imprisoned. When the crash came the rear of the tank was shoved out to the left, and the front end going up in the air had thrown me out on the ground beside a pile of ties. The head box car had tipped over with one end on the ties and, while broken iron and timbers had piled all about me, I had been shielded from any actual injury.

After I had time to consider the matter I became thoroughly frightened, and was compelled to go and sit down on an adjacent bank until I partly recovered my composure. Then I went over and did what I could to relieve the brakeman's sufferings, and while thus engaged the wrecking train arrived, bringing with it medical aid. Owing to an anticipation of its being needed, the train was ready to leave when the conductor of our train reached Hart, and arrived at the wreck much sooner than we had expected it would. Upon the arrival of the wreckers I learned what we had collided with, and how it came to be there.

Charley Brown, as I said before, had been made helper to the night hostler shortly after I went to work with the day man. He was one of those fellows who learn anything they go at altogether too fast, that is, instead of learning their own work well, they want to try and do that of someone over them and often get themselves and others into trouble. The hostler had sent him to the 835 to see how her fire and water was. He did this, and then he concluded that he would see if he could move the engine. She moved all right—rather faster than he expected—toward some other engines near the coal shed.

The quick manner in which the engine started rather startled him and, forgetting all about shutting off the throttle, which he had opened rather wider than necessary to start the engine, he pulled the reverse lever—after a frantic effort—into the back motion. The engine came to a stop immediately and started backwards. He forgot about the air-brake and about the open throttle. He struggled to get the lever ahead to keep the engine from going out on the main line, but the cylinders had too much steam in them; he only got the lever up part way, and through the split switch the engine went, out on the main line—faster and faster as she passed over the last switch—and dashed away to meet us with a youth in the cab, half crazed from terror.

The hostler saw her going and, realizing what had occurred, he ran to the dispatcher's office to send a warning down the line, but we were past the last telegraph office and could not be reached. He hurried back to the roundhouse and the wrecker was immediately got readv and a crew called to take it out, for everyone felt certain it would be needed. After waiting for some time the train was about to proceed under flag, when the arrival of our conductor made that unnecessary.

A search was made for Brown, but no trace of him could be found, and he did not show up until the next day, after he found that no one had been killed in the accident. He stayed on the 835 until he saw our headlight and then, fortunately, he had retained enough presence of mind to get off, and had escaped uninjured. He had fled back to Hart and kept himself concealed, awaiting developments of the wreck. The 835 was completely wrecked, and our engine and the head end of our train was badly used up.

Altogether, my first experience had been full enough of excitement for me.

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Our Congressional Interests

ALREADY in the present term of Congress a bill has been introduced into both the House of Representatives and the Senate that is of most vital importance to every man who works for wages, especially to those who are employes of railway companies. In the Senate, a bill known as S. 6451, has been introduced by Senator H. C. Lodge, of Massachusetts, and in the House the same bill known as H. R. 15990 has been introduced by Congressman A. L. Bates, of Pennsylvania, and these bills will be known as the "Lodge-Bates Employers Liability Bill."

These bills apply only to common carriers by railroad in States, Territories and the District of Columbia, and to those engaged in interstate commerce, as this is the extent of the jurisdiction of Congress. The fate of similar bills at past sessions of Congress is enough to discourage railway employes from again using their influence (if they have any) with the members of Congress whom they help to elect, and with the Senators who are elected to represent the party that many workingmen support. The Lodge-Bates Bill is one of the most important that we have ever seen introduced into Congress and every member of the Brotherhood of Locomotive Firemen, every member of every other railway labor organization; in fact, every railway employe whether he is a member of an organization or not, should endeavor to use his influence, be it ever so small, with his Representative and Senator to secure the support of the present administration for this bill. When the word "administration" is here used it is meant the party in power, for the party in power has absolute control over what shall be passed by the present Congress. If the party in power is willing that this bill shall be passed for the benefit of the railway employes of the country, it will be passed, and there is not the least doubt that the President will approve it, and it will become a law. On the other hand, if the party in power is influenced by the employing class to that extent that relief is denied railway employes, then the President will never have an opportunity to affix his signature to the bill.

The following is the full text of the Lodge-Bates Bill:

A BILL relating to the liability of common carriers by railroad in the District of Columbia and Territories and common carriers by railroad engaged in commerce between the States and between the States and foreign nations to their employes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That every common carrier by railroad engaged in trade or commerce in the District of Columbia or in any Territory of the United States, or between the several States, or between any Territory and another, or between any Territory or Territories and any State or States or the District of Columbia, or with foreign nations, or between the District of Columbia and any State or States or foreign nations, shall be liable to any of its employes, or in case of his death to his heirs at law, for all damages which may result from the negligence or mismanagement of any of its officers, agents, or employes, or by rea-

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son of any defect or insufficiency of its cars, engines, appliances, machinery, track, roadbed, ways, or works.

SEC. 2. That in all actions hereafter brought against any such common carrier by railroad to recover damages for personal injuries to an employe, or where such injuries have resulted in his death, the fact that the employe may have been guilty of contributory negligence shall not bar a recovery where his contributory negligence was slight in comparison to that of the employer.

SEC. 3. That no contract of employment, insurance, relief benefit, or indemnity for injury or death entered into by or on behalf of an employe, nor the acceptance of any such insurance, relief benefit, or indemnity by the person entitled thereto shall constitute any bar or defense to any action brought to recover damages for personal injuries to or death of such an employe: *Provided, however,* That upon the trial of such action against any such common carrier by railroad the defendant may set off therein any sum it has contributed toward any such insurance, relief benefit, or indemnity that may have been paid to the injured employe, or in case of death to his heirs at law.

SEC. 4. That nothing in this Act contained shall be held to limit the duty of common carriers by railroad or impair the rights of their employes under the safety-appliance Act of March second, eighteen hundred and ninety-three, as amended April first, eighteen hundred and ninety-six.

It will be noted in Section 1, that the whole fellow-servants doctrine is changed. At present an employe can not recover damages for injuries caused by the negligence of another employe, regardless of rank or grade, and these strange findings of the courts come down to us from past centuries when the number of employes of one master seldom exceeded those who could work in one or two rooms, and those rooms frequently composed a part of the dwelling of the master. This section would give protection to any employe that is accorded to any other citizen of the country.

Section 2 modifies the doctrine of contributory negligence. In the past, if an employe remained in the service of the master, regardless of what little care or precautions were taken by the employer for his safety, the fact that he did remain in the service made him guilty of contributory negligence. Such a ruling of the courts is unfair and unjust to those people who have to depend upon their daily wages for the support of themselves and their families.

Section 3 prohibits an employer from relieving himself from liability to injured employes, which injury has been occasioned by his negligence or carelessness.

Section 4 is for the purpose of preserving the rights of the employe under the present Safety Appliance law.

It should be made a special order of business at the very next meeting of every lodge of the Brotherhood of Locomotive Firemen to have these bills read in open meeting and that official action be taken on same which will result in the calling of the attention of every Representative and Senator in Congress to the necessity of doing something for these bills. There should be official action taken by every lodge, but the work should not end there. Then each individual member of the organization, who has any influence whatever with leading citizens, should secure as many signatures as possible to petitions to those same Senators and Representatives. In the past our experience has been that when petitions and resolutions have been sent to members of Congress they were either "pigeon-holed," and never heard from again, or a letter was written in reply in which great promises were made which the writer of the letter never intended to fulfill. Remember this is the short session of Congress and unless you begin your work immediately, and press it vigorously, the Lodge-Bates Bill will meet the fate of the many other bills that have been introduced into Congress in the past for the benefit of the common people.

* * *

Complicating Matters.

The Young Men's Christian Association, better known as the "Y. M. C. A.," is doing a great work in its line. In the past those in authority in that association have followed the example of the shoemaker who did "stick to his last." The following from the official organ of the New York Y. M. C. A., known as "Railroad Men," indicates that the association is about to adopt a policy of "expansion" in the matters that come under the jurisdiction of the Y. M. C. A. Railroad Men says:

"The gradual resumption of work at the coal mines is proceeding, and it looks as though the men would be compelled to return to work without gaining any concessions from the operators. Various politicians have dabbled in the business during the month to but little, if any, purpose, and the belief has grown strong in the public mind that such intervention only prolongs the struggle. The part of wisdom would seem to be for the men to go back to work and seek a readjustment of their status afterwards. * * *

"Railroad employes will do well to take the lesson of the coal strike to heart and to keep out of strikes. However expen-

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sive strikes may be to capital they are vastly more so to labor. In every strike there is a large group of men who cannot afford to be idle for a day, to say nothing of a term of three months. After every strike scores of men are out of employment for one reason or another. Those who have been active agitators are considered dangerous and undesirable men, and they never re-enter the service. The strike of 1890 was followed by a long train of personal suffering in the families of the strikers and not a few of them were out of work for a long time. Calm dispassionate discussion between the officials of railroad companies and their men is not only the wisest, but we are glad to believe, the increasingly prevalent way of arriving at decisions regarding labor matters. The officials, who are men by no means devoid of human feelings, as a rule, are fair and generous. The success of conservative labor organizations and the failure of radical ones is producing among labor leaders a growing confidence in pacific means for achieving results."

A Spotting Institution.

The following is a copy of a circular that is being sent to railway officials. What the result will be time alone will prove:

[Confidential.]

CORNELIUS L. BLISS,
271 Broadway.
NEW YORK, N. Y.

A RAILROAD PROTECTIVE SYSTEM.
(Name not yet selected.)

A service for railroads, insuring greater safety, economy and protection in their operation.

Dept. A. Furnishes the following weekly:
Section 1. List of discharged employes and reason of discharge.
Section 2. List of accepted applicants for railroad positions and titles of position secured.
Section 3. List of fake accident suits, fake witnesses to same and names of attorneys employed on case.
Section 4. List of defective and unsatisfactory railroad equipments and supplies and violated contracts.

Dept. B. Section 1. Investigation of applicants for position and also their references by a personal interview method.
Section 2. Investigation of railway equipment and supply houses before an order is placed. Expense of report according to service required.

Dept. C. Employment of counsel at distant points and securing witnesses for accident cases and otherwise assisting in preparation of trial cases.

Dept. D. Conference with parties injured in railroad accidents and in other ways endeavoring to prevent litigation.

Dept. E. The direction of efforts for the repeal of objectionable statutes and the promotion and assistance toward obtaining desirable ones.

Dept. F. Management, assistance and advice in labor matters or any other difficulties.

Dept. G. The investigation of improved systems and the performance of other special or miscellaneous services.

CHARGES.

To regular or occasional subscribers the charges for all services (except as specified in Depts. A and B) will be made according to the nature and time of services rendered.

The subscription for one year to Dept. A—$1, this includes the weekly lists as specified and the information in our files, which is easily obtainable, parties published in lists of those who are making applications for positions, also the right to the use of Dept. B on terms stated below.

Dept. B for subscribers only, as explained in above paragraph. Applicants and three references called on personally without regard to location, $3. Single calls either upon applicants or one reference $1 for each call.

NEW YORK, August 5, 1902.

Dear Sir:

The above plan is nearly perfected and with a few slight changes will be introduced this fall to the railroads in this State. As the gentlemen associated with me in this work desire to receive your views and suggestions I write to obtain same and hope to receive a report together with statement by return mail. While writing on the above I would also ask if you can recommend several gentlemen of ability, experience and integrity. It is our purpose to establish offices at a number of points and with management and clerking of same and with outside help we will require a large force. I desire to express the hope that you will co-operate in every possible way and we will stand ready to assist you whenever it is in our power to do so. Yours very truly,

CORNELIUS S. LODER.

[Copy.]

Compulsory Arbitration.

In his eleventh annual report Mr. Edward Tregear, Secretary of the Department of Labor of New Zealand, makes favorable reference to the working of the industrial conciliation and arbitration laws of that country. The following are his words, in part:

The visit of the Royal Commission from Victoria (consisting of members of both Houses of the Legislature) to inquire into the working of the New Zealand labor laws afforded an opportunity of discovering the latest phases of opinion among employers and workmen on the subject. There was, almost without exception, approval on all sides of the prin-

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ciple of the Act and determination to retain it, but wide divergence of opinion existed as to details. It was suggested that the Conciliation Boards should be abolished; that the Arbitration Court should be swept away and larger powers given to Boards; that there should be two Arbitration Courts, one for each Island, etc. Some persons proposed as original amendments matters which are the law already, and others broached theoretical improvements which are at present outside the arena of practical economics. It may, however, be as well to take into consideration some of the statements made, and examine into their truth.

It was asserted that when the Court fixed a minimum wage in a trade, that wage tended to become an average wage, or even a maximum. This may be true of very small establishments, where a man (not of enterprising character) may say, "I have a certain amount to spend on wages every week; if the wages of my inferior workmen have to be raised to a minimum, I will cut down the superior workmen's pay so as to keep the old average." Such a system would scarcely be possible in a large business, or even in a go-ahead small one, for a capable workman knows his own value too well to work under such conditions, and if an employer wants to keep up with or to surpass his competitors he must get the most efficient hands be can find or pay for. It is true, however, that when a workman leaves his old employ and gets new work he often has to start on a minimum wage, but if he is a valuable man he does not long remain at that rate. There appears to be more reason in another contention—viz., that the minimum wage affects the poorer workers harshly. It is only human nature, as well as good business, to suppose that if one has to employ, say, a carpenter at 10s a day whether he is quick or slow, good or bad, the best man will be engaged, and the slower or more stupid left out. In practice, however, it is found that the best men leave the minimum wage far behind, and there has been no proof presented that during the last two or three years—during which most of the awards have been made—any suffering has been caused by the institution of a minimum wage, while the benefit to the majority of workers is indisputable. The better class of employer is, of course, in favor of a minimum wage, since he is compelled by his own honesty to pay his men a just price for their services, and is thus exposed to unfair competition from the "sweater," who wishes to grind the earnings of his workpeople lower and lower, and abhors a minimum wage that interferes with what he calls his "liberty to run his own business as he likes."

It was complained that the present Act had increased the cost of living by raising the pay of workers: that coal costs more on account of miners' high rate of wages; buildings are more expensive because carpenters, plumbers, painters, etc., all have higher wages than formerly. That fact must be admitted, but it appears to carry little disadvantage. As soon as the workman gets his wages they are almost all distributed again directly; with high earnings he buys more bread, beef, beer, tea, clothes, theater tickets, excursion tickets, etc., than if he made poor earnings. Excepting the official classes with fixed incomes, and a few people who live on interest of investments, etc., there is no person in the community who does not benefit by the high wages of the workers; the money eddies round and round and fertilizes every trade, business, and profession. This is denied by some, on the ground that farmers whose produce goes over-seas have prices fixed by circumstances outside the colony. Any one, however, who can remember the New Zealand farmer of twenty years ago, and will compare his position with that of the farmer of 1902, knows that the latter's grumbling at his present position is merely the exercise of "the Englishman's privilege."

Accepting, then, the truth of the enhanced cost of living, a like acknowledgment can not be conceded to those who say that it is a hardship to give "preference to unionists"—at all events, in so mild a form as that to be found in any award yet made. It has always been coupled with some compliance from the unionist side—e. g., that an "unemployed-labor book" shall be kept by the union and be open to employers, or that no prohibitive entrance-fee be charged, etc. The unionist, who has to bear the worry, cost, etc., of disputes, and danger of offending employers, in order to better the condition of all workers, should certainly have some slight advantage over the man who is quite willing to accept the improved circumstances procured for him by the energy and self-denial of others, but is unwilling to share either the expense or the peril. Unfortunately for the workers, the practical part of any "preference-to-unionist" clause is nullified by the restriction that it is only when all other things are equal that preference is to be shown.

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As it lies entirely with the employer to say whether he considers one man equal to or better than another, the "preference" clause in the award helps the unionist very little.

The costly strikes (often accompanied with shedding of blood) which have recently taken place in Europe—notably at Barcelona, Trieste, and Moscow—make the valuable nature of our Conciliation and Arbitration Act all the more apparent. In spite of the reiterated cries of those opposed to it, and in refutation of reports industriously sent abroad as to the colony and the Government being tired of "compulsory arbitration," that it has broken down, etc., every alteration of the Act during the last session or two has been in the direction of making the arbitration more compulsory and the provisions more drastic. The neighboring Colony of New South Wales, after having made careful inquiries through a Royal Commission, passed an Arbitration Act based on that of New Zealand, with the added advantage of experience gained by our practical application, but with the notable difference that conciliation, the voluntary principle, was entirely eliminated, and only the powers of the Arbitration Court retained. It will be a matter of deep interest to citizens of New Zealand to watch the procedure of New South Wales under the new statute, and see if the result is favorable. So carefully and well have Conciliation Boards in many cases worked in this colony, so many are the occasions in which they have wiped out dozens of disputed points (leaving a few only for the Arbitration Court), sifted evidence, and given recommendations only requiring adoption by the higher Court, that very many, if the majority of, people who have really studied the subject would view the abolition of the Boards with regret.

In regard to the supersession of Conciliation Boards by special Boards composed of experts in the trade under dispute, I quote the words of Mr. Justice Cooper, President of the Arbitration Court, who recently, delivering an award in the Wellington bookbinders' case, remarked, "The Court has experienced very considerable difficulty in reference to making its award in this dispute. It had to call in the help of experts, but unfortunately the experts had disagreed upon every item, instead of assisting the Court to arrive at a decision."

By the amending Act of 1901 the Inspectors of Factories were given power to apply for enforcement of an industrial agreement or award, and several cases of breach have been reported to them during the year. I have considered that the position of an Inspector in the matter of laying an information under this Act is discretionary, and have instructed Inspectors that the same caution should be exercised under the Industrial Conciliation and Arbitration Act in regard to breaches of award, etc., as with violations of the Factories Act. If, on inquiry by the Inspector, and on his hearing what the other side has to say in the matter, he considers that there has been a breach of award or agreement he reports to the Chief Inspector in Wellington, and, if so instructed, files an informtaion with the Clerk of Awards. If, however, the Inspector reports that the charges are frivolous, or that reliable evidence is not to be procured, the Government officers take no further action in the matter, and it is left for the union or person making complaint to proceed with or relinquish, as is thought best. I do not consider that any alteration of this section is necessary (although it has been mooted), because if the Inspector should have to take up every complaint, and, without using his judgment, carry such complaint before the Court of Arbitration, the colony would be put to heavy expense, the time of the Court uselessly taken up, and the industry harassed without any result except defeat.

Application for enforcement of an award is often made to the Inspector of Factories by an industrial union, under the idea that th Inspector can use the power with which he is endowed by the Factories Act to examine books, papers, wages-sheets, records, etc., of an employer in order that he may prosecute for a breach of award under the Industrial Conciliation and Arbitration Act. This is not the case. The Inspector is expressly prohibited from using the power given him under the Factories Act for any purpose but the service of that Act itself, and he is punishable if he does otherwise. He may disclose nothing concerning which he has gained information while acting as Inspector of Factories. Nevertheless, if thought desirable, the law could be so amended as to give an Inspector under the Arbitration Act the same powers he now has under the Factories Act, and this doubtless would be of service in ascertaining whether a breach of award has or has not been committed.

The question of boy-labor is a very serious one, and full of difficulty. The glass trade in Great Britain, ruined

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through being made too much of a close corporation, is a striking example on one side, and its teaching is reinforced by the demands of parents, "What are we to do with our boys?" Strange to say, if boys are wanted they are sometimes difficult to get in New Zealand; but, few or many, the principle of their employment in skilled trades should be thoroughly defined and known. There is great objection to be taken to their too numerous admission if, as is forcibly asserted by trades-unions, it has the effect of flooding the labor market with persons of the "cheap and nasty" variety. It has not been unknown in English industries that the wife and children (working at low wages) have had to be the breadwinners of the family, while the father, out of work, sits in the empty house. Such a state of things is most undesirable, and a balance should be established of some kind between the journeymen and the apprentice. I am not quoting an hypothetical case when I refer to an instance of one colonial firm who, before the introduction of the Arbitration Court, employed three journeymen and twenty boys. These boys received no instruction of any kind worth calling by that name. The master was attending to the commercial part of his business outside and in his office. The journeymen would certainly not teach a boy in order that the latter should take his place at a cheaper rate as soon as competent. The result was that the general public were sacrificed, and an incapable, worthless crowd of "improvers" let loose on the trade. The unions generally ask for limitation of one apprentice to every three (or four) journeymen. Such an application is commented on by thoughtless persons as if the end of a skilled trade was in sight because there was only one beginner to each of the present workers. They do not remember that, as the term of apprenticeship is only for three or four years, each journeyman in the course of his working life (say forty years) sees ten apprentices enter the business at his side, and turn themselves into journeymen, thus giving an increase of more than three to one on the original number, or, if the journeyman's working life is shorter than forty years, at least two to one. The above remarks apply chiefly to labor in the skilled trades, as in printing, plumbing, painting, etc., but there are many employments in which young people can be accepted and can carry on efficient work after a week's tuition if the following rule be observed, viz.: Only that number of young persons should be continuously employed in any trade which that trade can absorb when such persons have reached adult age. It is the worst breach of political economics and greatest of cruelties to allow the young citizens of a country to waste their most valuable years in the promotion of a business which turns them out at manhood or womanhood to face the world in ignorance how to get bread. It needs no comment to show the injurious effect that would result.

* * *

Immigration.

The following extracts from the annual report of the Commissioner-General of Immigration, Frank P. Sargent, will be of interest:

Alien Contract Labor Laws.—The various recommendations in regard to amendments to the alien contract labor laws made in former reports of the Bureau have found fitting expression in legislation which passed the House and reached the Senate calendar, with favorable report from the Senate ommittee on Immigration, during the last session of Congress. The measure referred to (H. R. 12199) enlarges the scope of the contract or agreement feature, as well as extends the prohibition to include work of a nature which the courts, in construing the existing laws, held to be not within the meaning or intent of Congress, in enacting such legislation. The express exceptions are retained in the proposed law and the limitation of the right to import alien labor is enlarged by striking out the proviso that such labor must be used on "new industries, etc.," giving employers the right to import alien labor at any time provided they can not secure similar labor, unemployed, in the United States.

The same bill also provides for the temporary detention of aliens discovered to be under contract, in the event that their evidence appears necessary to convict the contractors at whose instance they attempted to violate the law.

It is hoped that during the coming session of Congress this measure will finally pass and receive the Executive approval, since it not only embodies the result of administrative experience as to what is requisite to make effective the purpose of the prohibition against the introduction of alien labor under contract, but it also relaxes the present law so as to favor American industries, so far as such relaxation does not involve an injustice to the American laborer.

As will appear from the statement of receipts and disbursements of funds un-

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der the control of the Bureau, which is given further on in this report, there was expended of the appropriation of $150,000 for the enforcement of the alien contract-labor laws during the fiscal year 1902 the sum of $141,553.90, leaving a balance on hand of $8,446.10.

Diseased Immigrants.—The somewhat sanguine view expressed in the last annual report of the Bureau as to the effect of careful examination by the United States Marine Hospital surgeons upon the transportation lines bringing diseased aliens to American ports has not been confirmed by the experience of the past year. The increase of alien immigration has been not quite one-third over that of 1901, but the comparative increase of diseased aliens for the same period has been more than two to one. The same races which exhibited the largest number of diseases persons last year maintain their pre-eminence in this respect for the year under consideration, as the accompanying statement shows:

Race.	*1901.*	*1902*
Poles	50	140
Hebrews	49	107
Italians	40	90
Japanese	30	29
Syrians	28	76
Slovaks	14	24
Germans	12	67
Irish	11	7
Greeks	10	12
Finns	10	28
Lithuanians	7	31
Croatians and Slovenians	1	21
All others	47	77
Total	309	709

These figures show conclusively the necessity for legislation which shall inflict upon the transportation lines, who have the means of protecting themselves from the effect of a violation of the law by competent medical inspection at the port of foreign embarkation, a penalty proportioned to the gravity of the risk to the health of the American people for bringing diseased aliens to ports of this country. The present penalty is the mere return of the diseased alien at the cost of the offending line. This, however, is virtually no penalty. Even if not collected from the alien or his friends, the actual outlay is so insignificant as hardly to be capable of calculation, and when so paid by others it makes business for the offending lines which collect passage both ways, thus constituting an actual premium on violations of the law in this respect. The measure before Congress, already referred to with approval, deals wisely and equitably with this subject by imposing a fine of $100 for each case of a diseased alien brought to a port of this country, such fine to be assessed upon the offending line by the Secretary of the Treasury upon satisfactory evidence that the fact and nature of the disease could have been detected by the exercise of reasonable care before the embarkation of such alien.

There is, in the opinion of the Bureau, no other provision in the contemplated legislation on immigration, admirable as that legislation is in most respects, so important to the well-being of the American people as this. It metes out, with a judgment equally firm and equitable to all interests, such a punishment as willful and danger-threatening disobedience of the law deserves, and as will protect no less the people of this country from imported disease than law-observing transportation companies from dishonest competition and the imposition of fines for unforeseen and unforeseeable conditions.

It is with unmixed gratification that the Bureau reports recent action by the parliament of the Canadian Dominion excluding from admission thereto aliens afflicted with loathsome and dangerous contagious diseases. This legislation has not as yet been put into operation by Order in Council, but it is learned that it soon will be, and the Bureau feels assured that, when such action is taken, the most discouraging factor in the administration of the provisions of the immigration laws for the exclusion of disease will have been removed. With a penalty such as that provided in bill H. R. 12199 for lines bringing diseased aliens to our ports and the ports of Canada closed to such aliens, it will be possible to accomplish the intended protection of our people from imported disease.

Immigration Through Canada. — The annual arrivals of aliens at ports of Canada professedly destined to the United States are shown, for the past six years, in the following table:

July 1, 1896, to June 30, 1897.... 6,542
July 1, 1897, to June 30, 1898.... 7,344
July 1, 1898, to June 30, 1899....11,550
July 1, 1899, to June 30, 1900....20,011
July 1, 1900, to June 30, 1901....21,674
July 1, 1901, to June 30, 1902....29,199

From evidence constantly accumulating it became so palpable that the numbers reported as so coming represented such a small portion of the aliens securing admission to the United States across the Canadian boundary, and it furthermore seemed so certain that many of the prohibited classes, particularly diseased aliens, finding it impossible to pass in-

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spection at ports of this country, resorted to the Canadian route, that a new agreement was made with the Dominion transportation companies and a special immigration officer, with a full corps of assistants, was placed at Montreal and given authority over all the inspectors on the border from Sault Ste. Marie, Mich., to Eastport, Me.

Immigrant Stations.—The four ports on the Atlantic coast receiving a steady stream of immigration and requiring a complete staff of officers, inspectors, registry clerks, interpreters, surgeons, and others under the supervision of commissioners are New York, Boston, Philadelphia, and Baltimore. During a portion of the year the arrivals at Portland, Me., also are sufficiently large and continuous to require the presence of such officers there. Those coming to New York so far surpass in number the aliens seeking admission at all other ports combined that the provision for suitable accommodation and inspection of immigrants at the first-named port has apparently somewhat obscured the same necessity at the smaller ports. It was assumed when the handsome structure recently erected on Ellis Island, in New York Harbor, was completed and turned over to its custodian, to be used for the accommodation of aliens pending the final determination of their admissibility under the provisions of our immigration laws, that the needs of the service at that port had been intelligently and liberally provided for, and that hereafter might be taken up in appropriate order consideration of the requirements for a similar object at other ports.

It is with deep regret, therefore, that the Bureau feels impelled by a sense of duty to report that the Ellis Island structure has in many respects failed to justify the reasonable expectations based upon the liberal expenditure made and the evident purpose of Congress to furnish an ideally perfect building for the use to which it was to be put. It is injudiciously designed in respect to the subdivision of the interior space for the various uses intended, resulting in the crowding of immigrants together in a manner imposing both to their health and comfort, and in other respects imposing unnecessary hardship and discomfort upon them. Large as the cost has already been, this fault can be corrected in a measure by additions to the present buildings. What seems far more serious is the faulty material and construction, involving outlays for repair and reconstruction almost from the moment the building was accepted on behalf of the Government. Where the fault rests for these serious defects the Bureau can not say; it can only direct attention to them for your information and the enlightenment of Congress.

The port next in importance to New York is that of Boston. Not near so many aliens seek an entrance there as at the former port, but the number is nevertheless large and the conditions involved in the enforcement of the law there are in some respects more embarrassing than at any other eastern port. It receives, as New York also receives, alien passengers coming there at regular intervals by trans-Atlantic lines; but it also has what New York does not have to contend with — the embarrassment of handling passengers brought from Canadian ports. Some of the latter are Canadians, of whom no head tax can be collected under the provisions of law, and some are Europeans who have resided a greater or less time in the Dominion. Besides these there is an unceasing flow of countless small craft, schooners, etc., coming from various points in maritime Canada and arriving at all times, inspection of each one of which must be made to detect and prevent violations of the immigration laws. It requires no argument to prove that these conditions are such as to tax the ingenuity, industry, patience and good sense of the inspection officers, even if every aid in the power of Congress to provide were furnished at that port. As a matter of fact, nothing has been furnished at Boston except a few office rooms on Long Wharf as a central meeting place for the officers, the conduct of clerical work and official correspondence, and the filing of records. The result is thus graphically stated in a report of Commissioner Billings, to whose unflagging energy and fidelity to the service it is a pleasure to bear witness:

For the fiscal year ending June 30 instant, we shall have examined between 42,000 and 43,000 alien immigrants from trans-Atlantic ports. We shall also have examined about 20,000 aliens from Nova Scotian ports. These figures do not include American citizens in either case, which would swell the total by about 30,000. * * *

At New York the immigrants are landed at one place. The boarding officers at that port examine (only) the cabin passengers aboard ship. At Philadelphia and Baltimore the passenger ships stop at one place. At Boston we examine the cabin passengers on the ship. But instead of discharging the immigrants at one central point, we have to go to at least eight different, widely separated docks to make our examinations.

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We also have to examine the Nova Scotian passengers at their docks and have to sign cattlement at different places, so that we are liable at South Boston, East Boston, Charlestown, Chelsea, and the city proper the same day.

This condition seems sufficiently serious to call for reform simply in the interest of an effective economy of the services of administrative officers; but the importance of erecting a landing station is re-enforced by the fact that detained immigrants must be kept on board the various vessels on which they were brought until their cases are finally disposed of. This means serious discomfort to the immigrants themselves, the wide separation at the same time of the inspectors and other officers and the chance of a defeat of the purposes contemplated by the law, through communication with and coaching by outside persons interested in landing proscribed aliens, or their escape.

I have, therefore, to recommend that the subject be called to the attention of Congress, with the urgent request that an appropriation be made for the building of a suitable immigrant station at the port of Boston. The most desirable site is believed to be on Castle Island, in Boston Harbor, under the control of Congress, the fort on which, it is understood, is not now garrisoned. Provision for the construction of an immigrant station thereon might be made under any restriction as to the use of the site for military or defensive purposes that Congress might deem advisable. In any event, however, an early provision of the accommodations requested is of the greatest importance, particularly in view of the probability of a considerable increase in immigration through said port, of which there is abundant evidence.

The officers at the ports of San Francisco, Philadelphia, Baltimore and the Canadian ports at which immigrant stations are located have discharged the duties of their respective positions in a manner which deserves the support and commendation of the Bureau. During the ensuing year the port of Philadelphia will be supplied with more commodious quarters for the accommodation of the immigration officers, and at Baltimore arrangements are in process for improved landing facilities for alien arrivals.

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A Communication.

NEW YORK, December 8, 1902.

Dear Sir—We desire to call your attention to the following recommendations regarding Chinese labor in the Philippines, in Professor Jeremiah W. Jenks' recent report to the Secretary of War:

It is recommended—

That the Philippine Commission be empowered to legislate regarding the admission of Chinese labor.

That a careful registration be made of every Chinaman in the islands, and that any new Chinaman introduced into the islands be made subject to a penalty if he is found away from his registered city or district of residence.

That it be permitted employers of not less than, say, twenty-five laborers to bring in Chinese under contract for a period of not over three years.

That these employers give bonds to secure the proper lodging, food and treatment of their Chinese laborers, as well as for their security and employment at the work specified in the contract.

That they further be under bonds to return each imported Chinese coolie to China at the expiration of the period of the contract, unless in the meantime the contract is renewed under the special permission of the government granted separately in each case.

That there be appointed by the Governor of the Philippines an inspector or protector of the Chinese, to see that the law is rigidly enforced, both as regards the proper care of the Chinese coolie and as regards the protection of the Filipinos and others against evasion of the contract by the coolie absconding and going elsewhere in the islands as a regular inhabitant; and, finally,

That while the present law excluding Chinese from the Philippines be modified as indicated, proper care be taken that the Chinese do not come from the Philippines into the United States.

This means the establishment of the contract system of coolie labor in its most objectionable form, in many respects resembling slavery.

The chief argument in its favor seems to be the desire to attract capital and to hasten the exploitation or development of the Philippines by a system of cheap labor. To quote the report: "It is, then, possibly fair to say that of the ordinary Filipino laborers a certain percentage may be secured who will work faithfully and well, provided good wages are paid and provided they are handled by an employer with firmness and skill.

There are, however, not enough Filipinos who can be secured in the city or from the provinces to do anything like the amount of work required to develop the resources of the islands as rapidly as is desirable. Doubtless some of the American and European employers of labor in Manila who are raising the greatest outcry regarding the scarcity and worthlessness of Filipino labor, and who are demanding that the Chinese be admitted, are wishing mainly to cut down

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wages and secure cheap labor. To assume that this desire, however, is the only one which leads to the demand for Chinese labor is to misjudge the facts.

This appears to be an altogether insufficient reason for such a proposition, with its great wrong to the Filipino—who is not in any way consulted—and its peril to the American workingman. With Chinese coolie labor in the Philippines, it will be almost impossible to prevent its coming into competition with American labor at home and lowering its standard of life. The wiser way would seem to be the gradual training and elevation of the Filipino laborer. We call the report itself to your careful attention and urge that only constant vigilance can protect from attack the ground already gained at home.

Yours truly,

SAMUEL GOMPERS,
ERNEST H. CROSBY,
DANIEL HARRIS,
A. J. BOULTON,
CHARLES B. SPAHR,
HENRY WHITE.

Court Decisions

Contract Labor Law.

THE Baltic Mills Company published in an English newspaper the following advertisement: "Wanted. First-class weavers, on fine combed work, in one of the most beautiful villages in Connecticut, U. S. A. First-class weavers can earn per day 35s to 2£. Families preferred. Reasonable rents in six-room cottages. None but first-class weavers and respectable people need apply." In an action against the company for violation of the contract labor law, District Judge Platt, of the United States district court of Connecticut, held that such advertisement did not "promise employment," within the meaning of the amendment of March 3, 1891, to the alien contract labor law, and would not support an action to recover the penalty imposed by such law for encouraging the immigration of aliens into the United States. In the course of its opinion the court said:

"The title to the original act (23 Stat. 332) indicates with admirable brevity and clearness the mischief which was aimed at when the act was passed. It was called by its makers 'An act to prohibit the importation and immigration of foreigners and aliens under contract or agreement to perform labor in the United States, its Territories and the District of Columbia;' but the law failed in some measure to destroy the alleged mischief which it sought to remedy. In one way and another the federal courts stripped it of much of its anticipated efficacy, and so further efforts were indulged in by our law-making body to lessen the imagined iniquity; but still both the administrative and legislative branches of our government, as well as the public at large, unite in terming it the 'Alien Contract Labor Law.' Hoping to further facilitate the enforcement of this law, the amendment of March 3, 1891, was passed, and under Section 3 of that amendment this action was brought. Here is an attempt to suppress advertisements in foreign newspapers which promise employment, and it is provided that any alien who comes into this country in consequence of such an advertisement shall be considered to have come under the contract which the original act endeavored to prevent. But it still remains true that the advertisement which encourages him to come must 'promise employment,' and so, to my mind, the case turns upon the construction which the courts shall give to those words. The statute is highly penal, and should be strictly construed. I do not understand that there is any contention here over that proposition, but, in any event, I should so hold. To give the words the sense which the district attorney suggested would compel us to abandon not alone the strict and narrow construction which any legal definition entails, but, going beyond that, to forsake even a moderately broad view of their meaning, and would bring us directly into the realm of unsubstantial hope and rainbow chasing with a vengeance. It is not conceivable that any sane man of full age, after studying the picture which the advertisement presents, alluring though it may be, could force himself to the point of tearing up his household lares and penates, however humble, and transplanting them, with his family and himself, to the attractive hills of Baltic, notwithing, its 'six-room cottages' and 'electric cars.' Any vestige of prudence would not only suggest, but demand, that a letter of inquiry should be sent to 'H. Lawton, Manager,' and a far more definite promise exacted than any which is even hinted at in the advertisement itself. It is probable that the Government has no more definite knowledge than that which it has spread upon the record. If it has not, then, in my opinion, it has no case."

United States vs. Baltic Mills Co., 117 Fed Rep. (U. S.) 959.

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Right to Strike.

The Jersey City Printing Company filed a bill against James Cassidy and others, securing at the same time a temporary restraining order, enjoining the defendants "from any and all personal molestation of persons willing to be employed by complainant, with intent to coerce such persons to refrain from entering such employment; from addressing persons willing to be employed by complainant against their will, and thereby causing them personal annoyance, with a view to persuade them to refrain from such employment; from loitering or picketing in the streets near the premises of complainant, Nos. 68 and 70 York Street, and No. 37 Montgomery Street, Jersey City, with intent to procure the personal molestation and annoyance of persons employed or willing to be employed by complainant, and with a view to cause persons so employed to quit their employment, or persons willing to be employed by complainant to refrain from such employment; from entering the premises of complainant, Nos. 68 and 70 York Street, Jersey City, against its will, with intent to interfere with its business; from violence, threats of violence, insults, indecent talk, abusive epithets practiced upon any persons without their consent with intent to coerce them to refrain from entering the employment of complainant, or to leave its employment."

On a motion to dissolve the injunction, Vice Chancellor Stevenson, in continuing the restraining order, said:

"The order does not interfere with the right of the workman to cease his employment for any reasons that he sees fit. It does not undertake to say that workmen may not refuse to be employed if certain other classes of workmen are retained in employment. It leaves the workman absolutely free to abstain from work—for good reasons, for bad reasons, for no reasons. His absolute freedom to work, or not to work, is not in any way impaired. The restraining order is based upon the theory that the right of the workman to cease his employment, to refuse to be employed, and to do that in conjunction with his fellow workmen, is just as absolute as is the right of the employer to refuse further to employ one man, or ten men, or twenty men who have theretofore been in his employment. From an examination of the cases and a very careful consideration of the subject, I am unable to discover any right in the courts, as the law now stands, to interfere with this absolute freedom, on the part of the employer, to employ whom he will, and to cease to employ whom he will, and the corresponding freedom, on the part of the workman, for any reason or no reason, to say that he will no longer be employed, and the further right of the workmen of their own free will to combine, and meet as one party—as a unit—the employer, who, on the other side of the transaction, appears as a unit before them. Any discussion of the motives, purposes, or intentions of the employer in exercising his absolute right to employ or not to employ as he sees fit, or of the free combination of employes in exercising the corresponding absolute right to be employed or not as they see fit, seems to me to be in the air.

"Thus there is a wide field in which employes may combine and exercise the arbitrary right of 'dictating' to their common employer 'how he shall conduct his business.' The exact correlative of this right of the employe exists in an equal degree in the employer. He may arbitrarily 'dictate' to 5,000 men in his employ in regard to matters in respect of which their conduct ought, according to correct social and ethical principles, to be left entirely free. But if the dictation is backed up solely by the announcement that if it is not submitted to the dictating party will refrain from employing, or refrain from being employed, as the case may be, no legal or equitable right belonging to the party dictated to which I am able to discern is thereby invaded. Some of the expressions which I have used and what are commonly used in relation to this subject, seem to me to be misleading. Union workmen who inform their employer that they will strike if he refuses to discharge all nonunion workmen in his employ are acting within their absolute right, and in fact are merely dictating the terms upon which they will be employed. All such terms necessarily relate both to 'how the employer shall conduct his business,' and how the employes shall conduct their business. The doctrine of the old cases, of which we have in New Jersey an interesting example in State vs. Donaldson, 32 N. J. Law 151, 90 Am. Dec. 649, which placed the employe, when acting in combination with his fellow workmen, at a tremendous disadvantage as compared with his employer, I think may be regarded as entirely exploded. The authority of the deliverances of the Supreme Court in State vs. Donaldson was largely, if not entirely, abolished by statute in 1883.

"The principles which I have endeavored to state are all recognized in the restraining order in this case, and are so

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plainly recognized that the intelligent and industrious counsel for the defendants is unable to point out any respect wherein the terms of the order should be modified. The things which the restraining order interdicts are things which, for the purposes of this argument, it is practically conceded the defendants have no right to do. In this situation of the case, it would seem to be unnecessary to further consider the legal propriety of the restraining order, much less to take it up clause by clause. I have, however, pointed out what conduct on the part of the defendants is excluded from the operation of this order, and I think that it is fair to all the parties to this suit who are concerned in the maintenance of the restraining order to explain, at least in a general way, what conduct is included within its prohibition. This can be most conveniently done by making plain the most important principles embodied in the order—principles which practically have been developed by the courts of this country and England during the last five or ten years. The injunction in strike and boycott cases is of very recent use. Already a wide difference of opinion has been developed among judges in regard to the liability of a combination of workmen to actions at law for damages and suits in equity for an injunction. It is only very recently, I think, that one of the most important rights which now are vindicated by the injunction in a strike case has been differentiated; in many cases it has been apparently half recognized, or indirectly enforced. That the interest of an employer or an employe in a contract for services is property is conceded. Where defendants in combination or individually undertake to interfere with and disrupt existing contract relations between the employer and the employe, it is plain that a property right is directly invaded. The effect is the same whether the means employed to cause the workman to break his contract and thus injure the employer are violence or threats of violence against the employe, or mere molestation, annoyance, or persuasions. In all these cases, whatever the means may be, they constitute the cause of the breaking of a contract, and consequently they constitute the natural and proximate cause of damage. The intentional doing of anything by a third party which is the natural and proximate cause of the disruption of a contract relation to the injury of one of the contracting parties, is now very generally recognized as actionable, in the absence of a sufficient justification; and the question in every case seems to turn upon justification alone. Where the tangible property of an employer is seized or directly injured by violence, with intent to interfere with the carrying on of his business, the case also is free from embarrassment. In the case of Frank vs. Herold (recently decided by Vice Chancellor Pitney), 52 Atl. 152, the whole subject of the unlawfulness of molestation and annoyance of employes with intent and with the effect to induce them to abandon their employment, to the injury of their employer's business, is amply discussed.

"But the difficult case presents itself when the workmen in combination undertake to interfere with the freedom of action on the part of other workmen who naturally would seek employment where they, the workmen in combination, desire and intend that no man shall be employed excepting upon their terms. The difficulty is in perceiving how molestation and annoyance, not of the employes of a complainant, but of persons who are merely looking for work, and may become employes of the complainant, can be erected into a legal or equitable grievance on the part of the complainant. But the difficulty is still further increased where the possible employes make no complaint to any court for protection, and the conduct of the molesting party does not afford a basis which the ancient common law recognized as sufficient to support an action of tort on their behalf, such as for an assault and battery, or a slander. Abusive language is not necessarily actionable at the common law. If to call a man a 'scab' in the street, or to follow him back and forth from his home to his place of employment, was formerly not actionable on behalf of the victim of this petty annoyance, the problem is to understand how one who is merely the victim's possible employer can complain either at law or in equity; there being no actual contract for service, but only a potential one, interfered with.

"It is easier, I think, to obtain a correct idea of the legal and equitable right which underlies many of the injunctions which have been granted in these strike cases, restraining combinations of workmen from interfering with the natural supply of labor to an employer by means of molestation and personal annoyance, if we exclude from consideration the conduct of the defendants as a cause of action on behalf of the immediate victims of their molestation, i. e., of the workman or workmen whom the combination are seeking to deter from entering into the employment which is offered to them, and which they, if let alone, would wish to ac-

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cept. I say this although I firmly believe that the molested workman seeking employment, and unreasonably interfered with in this effort by a combination, has an action for damages at common law, and where the molestation is repeated and persistent has the same right to an injunction in equity which under the same circumstances is accorded to his contemplated employer. The underlying right in this particular case under consideration, which seems to be coming into general recognition as the subject of protection by courts of equity through the instrumentality of an injunction, appears to be the right to enjoy a certain free and natural condition of the labor market, which in a recent case in the House of Lords was referred to, in the language of Lord Ellenborough, as a 'probable expectancy.' This underlying right has otherwise been broadly defined or described as the right which every man has to earn his living, or to pursue his trade or business without undue interference, and might otherwise be described as the right which every man has, whether employer or employe, of absolute freedom to employ or to be employed. The peculiar element of this perhaps newly recognized right is that it is an interest which one man has in the freedom of another."

Jersey City Printing Co. vs. Cassidy et al., 53 Atl. Rep. (N. J.) 231.

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Wages, and Prices of Commodities.

There is much projected railroad building, and some actually under way, from the United States into Mexico. Capitalists claim there is much undeveloped wealth in northern Mexico that offers a good field for investment. Whether this is a good field for the investor or promoter remains to be demonstrated.

It would appear as though our moneyed friends were not suffering through lack of profits at home, but perhaps the American lamb has been clipped so close that he feels the icy chill of panic through his ragged fleece, and the Mexican lamb, therefore, offers better opportunity for adept shearers.

At any rate, railroad men will not be particularly anxious to enjoy the beauties of a Mexican climate while chasing the dollar. Men engaged in the operation of trains are too liable to imprisonment in filthy jails, with small prospect of release in case of injuring any citizen of that country. In addition to that, wages are paid in silver unless otherwise agreed, and at the present time it takes $2.85 in silver to even up with one of Uncle Sam's dollars, so that steady depreciation in the value of money in that country is equal to a wage reduction in the same proportion.

In the United States there has been a steady increase in the price of commodities, and this would also be a wage reduction in any line of work where a corresponding increase in wages has not been made. The advance in commodities may always be reckoned on to precede by considerable time any advance in wages.

W. L. FRENCH.

♣ Contributed ♣

Education.

I AM prompted to write a letter for the MAGAZINE on the subject of Education, more so for the reason of the recent utterances of Prof. Eliot, President of Harvard College, who recently said that trades unions were opposed to education and hindered it whenever possible, preferring to keep their members in ignorance rather than educate them. This learned man went a step farther and said he had great respect for the strike-breaker and scab for showing their independence in time of strikes and lockouts. The writer has from boyhood been in close touch with working people in nearly every trade and calling and can say from knowledge of his own that those who belong to labor organizations have always been and are today the foes of ignorance, and are the strongest advocates of education of any class of people in the world. I will go further and say that one of the many reasons why organized labor came into existence was to enable the man of family to get a wage large enough to enable him to send his children to school.

A short time ago while passing the First Ward schoolhouse in my own city, I observed at the noon hour an army of boys and girls at play ranging in the ages from seven to sixteen years. All these children were not of wealthy parents by any means, but belonged to the families of working people, and in nearly every

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instance did the children represent fathers who belonged to the trades unions that represented their crafts. Now, mind you, that was only one school, and the city affords several more. It is the same in all schools of the city. My city is no exception to the rule. It is the same wherever you find the organized; but, let us, Professor Eliot, see what the conditions are where we find the unorganized. Let us go into the sweatshop districts of the large cities, also let us go into the South, down into the country where the cotton grows, a part of the country that is sung in song and poetry and story. What do we find? Children in school? Oh no! Where then? Why, in the factory or the cotton mill at work, wearing out their lives; being dwarfed in mind, body, and soul. For what? Gold! Why? In order that the mill owner may send his sons and daughters to Harvard College or somewhere else to be taught that working people are an inferior class and should be shunned, because they band themselves together for the purpose of getting an honest dollar for an honest day's work, to enable them to educate their children.

If the President of Harvard College would get in close touch with the trades union man and study his method of doing business he no doubt would change his opinion, but, as it is, he views him from long range. Perhaps takes his views from some people we have heard of through the press, who seem to think they are the chosen few who are to rule this world of ours by a right that they say was given to them by "divine providence." I do not think Providence had anything to do with it as far as giving any one the divine right, or to make him master over others, or put him in possession of wealth other than by honestly earning it.

History tells us that when a Savior was born it was in a stable in Bethlehem and his surroundings were the most humble known to any human being in this life. History further tells us that the first to know of His birth in the world was the shepherd attending his flock out on the mountain side, and this fact was made known by a brilliant star appearing that fulfilled the prophecy that had long been made. Strange was it not that the Holy Mother of our Divine Lord was not taken into the home of some wealthy and influential person and there bring forth the Divine Redeemer, instead of in a stable amongst animals of the brute creation! Strange was it not that the message did not first reach the man of wealth and influence instead of a poor herder of sheep on the mountain side far away from the Holy City! Strange was it not that when the Savior grew to manhood He did not take possession of lands and water, mines and farms, ships and other means of transportation, castles and temples, and power that no one could dispute but what he had, as He was the Ruler of the Universe. By a command of His the sun would stand still, or the tempest be hushed. But, no; instead of using His divine power He accepted the office of a poor carpenter, toiling long and hard each day to make a scanty living by the sweat of His holy brow. Strange He saw fit to teach the gospel of the brotherhood of man and the fatherhood of God. Strange was it not that he healed the sick, comforted the broken-hearted, and assisted the poor by his kind words of encouragement. Strange, was it not, that he said the laborer was worthy of his hire, and woe be to any one who might defraud him of his wages? Strange was it not that he should gather around him every little child and say that woe unto the person that might harm them for in their innocence such as these were the elect for the kingdom of Heaven. Yes, it seems strange when we think it all over, yet it is true.

How about our time and the children? Well, there is agitation going on in their behalf and the battle-cry is to keep them out of the sweatshop, workshop, mine and factory, until past sixteen years of age. Why do this? The answer is easy—to give these children a chance to go to school. Who started the agitation that children should go to school and be kept out of the workshop, mine, and factory? Why, organized labor, of course. Who will bring this matter to a successful termination? Organized labor, of course. 'Tis true there are many wealthy and influential people helping us in this work, but it was after we had started the agitation ourselves that children should be kept in school that we got their support. The leaders of all labor organizations have at all times spoken out plain and forcible on the question of education; have advocated from the platform and through the press the necessity of sending children to school. Our periodicals have never missed an issue but what we have something to say in behalf of education. THE LOCOMOTIVE FIREMEN'S MAGAZINE devotes pages to all matters that go to make a man more useful to his employer, his family, and himself. We know we can not advance one step now without having knowledge of our business. All, or nearly all, railroad companies require that every

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fireman pass a mechanical examination before receiving promotion, and in nearly all instances the examinations are rigid. The Brotherhood wants her members to advance; is ever encouraging them to do so in every way possible. And let us see what the results have been:

It would be impossible to find space in the columns of our magazine to point out, or single out, each instance whereby a close application of duty has advanced our members. We will say in a few words that many of our members hold good positions on different railroads, having secured them by study and merit; others have advanced in life and left railroading entirely, but still retain their membership with us. Every member who will read this criticism of the words of the President of Harvard College, knows what I have said is true. The President of the United States, Theodore Roosevelt, never for one moment thought that we were opposing advancement. Had he, I am sure that at Chattanooga, Tenn., to meet and greet us would have been the last place he would have gone to do workingmen honors. He came to our convention, gave us good counsel and advice. Told us how he believed a man should live to make himself useful, and I am sure his words of advice are heeded. The President went further and said that the Brotherhood of Locomotive Firemen was his ideal of a labor organization and was organized along the right lines. The President was quick to see for himself that we educate our members to know what is right between man and man, and that we are never unreasonable in our demands upon our employers, and that we are anxious to get a wage large enough to enable us to properly clothe, feed, shelter, and educate our children. The President said that he was in favor of organized labor, that he believed in it when conducted properly. President Eliot can see no good in trades unions. He says they teach wrong instead of right. President Eliot says he has respect for the strike-breaker, or scab. Well, that is more than the strike-breaker and scab has for himself; a man who has any self-respect for himself and his family, never did and never will become a strike-breaker. To scab for any reason is bad enough, but to be a strike-breaker is several degrees below a scab. Some men think they have reason to take another man's place in a strike or lockout and will keep it if they can, but a strike-breaker only cares to hold the position until the strike is lost or won, and he then finds other pastures green. The first biped to take a place in a strike is a strike-breaker and he is always found in a low dive that respectable people always shun. He is loud in his talk, brutal in his manners and hellish in his designs, and he is at home with a gun in each pocket, and it takes little or no provocation at all for him to use his gun. He is so well steeped in vice, so well cultivated in advice, such as he gets from opponents of trades unionism, that he usually begins his operations by shooting at old men, women and children. The taking of human life is no more to President Eliot's beloved strike-breaker than the killing of a Kansas coyote by a cowboy. Honesty, he never heard of it. Should the strike-breaker meet honesty in the road he would shun it the same as a decent man would a skunk. In a strike if the strike-breaker can get in touch with the corporation's pocketbook, he is in clover while it lasts. Anyway he is sure of big pay while the trouble is on. Strike-breakers are usually paid ten times as much for doing their dirty work as the strikers are asking for in doing an honest day's work.

In the St. Louis street car strike a couple of years ago the strike-breaker got in his work in good shape and was not backward in saying so either. One strike-breaker said, "I have made several good farms doing this kind of work, as I get all of the rake-off until there is a system in the running of cars, then I go elsewhere." I have been a close student of strikes for twenty years and can truthfully say, that when corporations win a strike the first thing they do is to get rid of the disreputable scabs and strike-breakers. Employers do not want them except to use them during the strike, and when that is over the fellows who sell their manhood are set adrift. I am sorry that the scab and the strike-breaker can not have a convention so the President of Harvard College could greet them. I am sure if Satan came on earth with his imps that they would be a credit to the motley crowd that President Eliot admires. Sorry, Professor, that you can not meet them, but that kind of trash is never seen in large numbers; they prefer to go by themselves, feeding where they can and when they can; living like leeches off of the toil of honest men and women and who believe that an honest day's labor should be rewarded with an honest day's pay, and whose high and noble purpose is to clothe, feed, shelter, and educate their children in order that they may be useful to the home—the structure upon which the government rests.

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If Professor Eliot, of Harvard, will investigate he will find that organised labor have in some places adopted children from the factories and are caring for them. He may rest assured the children are in school and not in shop, mine, or factory. Working people will pay no attention to such men as this "professor," who perhaps never in his life came in contact with industrial conditions as we see them, which demands of us a cooperation in order that we may get our just rights, rights we ask in an orderly manner, recognising the rights of all others.

CHAS. W. MAIER.

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Washington Gossip.

A. F. of L. and Jurisdiction.—The railway brotherhoods, not being affiliated can take a philosophic interest in the peculiar situation which confronts the A. F. of L.

That vast federation of trade unions has grown with great rapidity and every appearance of prosperity for the past five or six years. Its headquarters at Washington have been enlarged several times in order to handle its business.

It is an undoubted fact that it has immensely advanced the general cause of organized labor with the outside public by providing adequate machinery for various kinds of propaganda work which can best be done from a central headquarters.

Now comes the question of jurisdiction. It is not new in one sense. There have been mutterings and grumblings for the last three years along trades which seemed to overlap each other's jurisdiction.

But President Gompers's solemn warning that unless the big unions changed their policy and *soon*, came like a thunderbolt out of the blue to the outside public.

The jurisdiction crisis was made more acute by the threat of the big unions this year to elect some one who would represent their policy of so-called Industrialism—although the term is far from an accurate one.

The fact is that certain large unions under this catchy title have decided to claim every branch of trade which works anywhere near them regardless of whether its interests are theirs or not.

Of course the small unions protest. They do not care to be swallowed into an industrial trust. It might be benevolent assimilation, but it doesn't look that way to them. They prefer to undertake all the expenses of national organization in order to preserve their independence.

The A. F. of L. is face to face with a very difficult problem. There is no escape, because it charters all affiliated organizations, defines their lines of jurisdiction and guarantees to each union to defend its autonomy from encroachment.

It is very difficult to see how the matter will work out. The big unions are flushed with a sense of power and there is no doubt but the tide sets their way for the time being; still the smaller unions are determined to keep their independence even if they have to withdraw from the Federation.

Dissension of this sort will react sharply on the big unions because the employers will be quick to take advantage of it. They have already done so with disastrous effect to the unions in a number of cases.

It reminds one of the struggle of the states of our own Union in the early days when internal dissension threatened to disrupt them after they had won their independence from the mother country, only to be faced with a greater danger from within.

The unions in the Federation are at this time in much greater danger from their "jurisdiction rows" than from attacks by unfriendly employers. It may be that the larger unions will now wake up to the broader aspects of the case which they have heretofore neglected. The threshing out of the differences on the floor of the A. F. of L. convention was a step toward that full understanding which sometimes brings peace out of war.

In any case it is a peculiar danger which threatens the future of organized labor and one that will need very careful handling if the trade unions are not to fall into the state of confusion which befell the K. of L. shortly after it reached the zenith of its power.

Something much akin to the present fad of Industrialism caused the disruption of the Knights. The allying of a dozen branches of trade in one cumbersome organization meant, in practice, that none of them received proper attention.

Labor Legislation.—A strong effort will be made to have the new Chinese Exclusion Act amended at this session of Congress so it will apply without regard to existing treaties instead of as now, "where not inconsistent with existing treaty regulations," which latter innocent looking clause makes it perfectly easy for Chinese to swarm into this coun-

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try via Canada, Mexico or the Philippines, just as they will.

There is some disposition to make the amendment; the officials charged with executing the present law are construing it as far as possible to keep out the Chinese. It is pretty well recognized that unlimited immigration of the yellow horde would be a national evil.

Manufacturers' Association and the Eight-Hour Bill.—The Manufacturers' Association is preparing to add to the gayety of nations by keeping an expensive lobby at Washington this winter to defeat the Eight-Hour and Anti-Injunction bills.

It is recognized that the eight-hour bill applying as it does to government contractors would not directly affect the manufacturers throughout the country, but under the violent leadership of President Parry they have become imbued with the notion that once the law passes, its moral effect will be to initiate the eight-hour day in all trades.

It will act in that direction and it's a pity the manufacturers don't understand what a good thing that will be for them.

No employer ever wants to go back to the longer hours once the eight-hour day has been established in his business. It has been demonstrated over and over again that the eight-hour day does not increase the expense of production.

But if the manufacturers want to spend money on a lobby why should anybody want to deny them that pleasure? A lobby of that sort never accomplishes much of anything. Perhaps its members would get valuable education from a winter in Washington in conflict with the representatives of the railway brotherhoods and the A. F. of L., before Congressional committees.

When it comes to the anti-injunction bill the manufacturers are downright rabid.

Their passionate desire to keep the weapon of offense is in proportion to its injustice and inherent illegality.

It is hardly likely that the anti-injunction bill will pass this session of Congress in the shape desired by organized labor, and it may as well be threshed out with the manufacturers' lobby at one time as another. The right measure is bound to be enacted one of these days and then organized labor will come nearer to meeting unfair employers on equal grounds.

Coal Operators Stubborn.—The coal strike commission is displaying considerable industry in looking up the actual state of affairs in the anthracite region.

It will be very interesting to see how the operators take the decision—especially if it involves any concessions on their part—as it probably will.

Thus far President Mitchell of the United Mine Workers has filed the claims of the miners which led to the strike and the operators have replied in a statement which denies that the miners' claims are just and indicates that the operators have no intention of conceding anything.

President Roosevelt follows the work of the commission with the greatest interest and it is well known in Washington that he believes there should be a substantial advance in wages for the men and that the working hours should be made reasonable.

It is almost amusing to note the affected terror which the operators display in regard to the union. They lose no opportunity to impress upon the strike commission that it—in their opinion—is not called upon to deal with this question.

But the operators are mistaken. The commission is instructed to go into all the causes of the present trouble and to devise some means of avoiding difficulties in the future.

Dealing with the union is about the only way of doing that, and there is a very fair prospect that the commission will come to that conclusion. The operators will be in a worse position than ever if they refuse to accept the decision of the commission.

In reality they are making a great bogey of the union question, and they know it themselves.

Practically all the big operators are likewise owners of coal carrying railroads. In the latter capacity they deal with organized engineers and firemen and usually with other brotherhoods among the railway employes.

They have been obliged to do this because the railway employes were well enough organized to force recognition of their claims.

The operators will find it easy and pleasant to deal with the miners' union if they will get out of their heads the notion that they are the absolute owners and masters of the men who mine coal. It is like the giving up of slaves—difficult at first, but better for everybody concerned in the long run.

The miners have been behaving with great prudence. In many cases their

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leaders have been blacklisted, but pending the decision of the commisison employment has been found for these men elsewhere rather than force another strike. It is likely that the general public does not realize how generous is the attitude of the miners in this case.

At any rate coal is being mined, and the dangers threatened by the famine are over, but in many lines of manufacturing work has been put back for months by the scarcity of coal during the summer, and it will take a long time to recover.

Now that elections are over we hear very little of any desire on the part of the forthcoming session of Congress to take any radical measures in regard to government control of coal mines. It is probably true that public sentiment is hardly ready for such a step, and there is considerable doubt as to whether such a measure would be a millenium for the miner—but the quickness with which the subject was dropped after election only illustrates the alertness with which the candidates of both parties seize on passing issues to impress the voters when about to make their decision.

As the session which convenes this December is the short session of Congress, it is not likely that anything very startling will be done.

The next Congress is safely Republican, though not by as big a majority as this one, and it looks as though any tinkering with the trust question would be left until next year when the long session of the new Congress will have plenty of time to deal with it.

President Roosevelt will probably try to have a commission appointed on tariff revision, but this is not anything very startling. Commissions have a way of doing nothing in particular and for long periods of time at that. This is no reflection on the President's desire for such reform—but if a commission is his only instrument, the reform will be leisurely in its advent.

Harvard's President and Labor.—President Eliot of Harvard seems to have taken a queer moment to talk nonsense about trade unions.

He is a member of the Civic Federation too, and might be supposed to know something of labor unions.

He does know better, but when talking to the Boston Economic Club he probably thought it politic to cater to its notions.

Imagine him expressing "profound contempt for any man who did not choose to labor every day just as long as his strength would permit."

Does President Eliot work that way himself?

We trow not.

If he wants to find a really bright, shining, conspicuous example of a man working "just as long as his strength will permit" he can go to the sweatshops of New York City, and similar places where the longest hours of toil are paid the lowest wages and where the toilers are the lowest in the scale of civilized workmen.

Is that the sort of American workmen President Eliot likes?

The young men whom he is turning out of his college are not looking for that sort of strenuous life. They are trying to make an educated brain save them long hours of manual labor—and very properly.

Then President Eliot aired another absurdity by saying that trade unions were all wrong because they limit the number of apprentices in a trade and hence the number of skilled workmen. The fact happens to be that limiting the number of apprentices results in turning out skilled workmen, because a moderate number of apprentices will be properly taught by the journeymen. The employers who want unlimited apprentices are those who make it impossible to train skilled mechanics.

They want a large number of apprentices because they can be had *cheaper* than journeymen, and then employ just enough skilled men to oversee the work.

The apprentice learns—not a whole trade—but some little bit thereof, and his work is completed by others, each knowing their little portion of the mosaic, and only that.

A railroad superintendent, formerly a locomotive engineer, recently called my attention to the remarkable system of subdivision of labor which has been introduced into the railroad shops of one of the largest railways in the country.

Here are no machinists or other skilled men. Instead a large number of young men are taught some portion of what, for instance, would go to make a skilled machinist. The men are paid much less than skilled craftsmen. They are anchored to the company because they are not fitted to work elsewhere, knowing only the system taught by that company.

So if President Eliot would take the trouble to study existing economic conditions he would find that it is a certain

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class of employers who are replacing the skilled mechanic with the "piece" workman. Verily it takes nine men to make a tailor in more trades than one these days.

If President Eliot would study the trend of the times he would know that public sentiment is now too enlightened to listen patiently to the time-worn objections to labor organizations. The trade unions are far from perfect, but they are the best known instrument for settling industrial conditions without unnecessary strikes, and they guarantee a high degree of skill on the part of their members.

It is the object of every intelligent American citizen to make a fair living under reasonable hours of labor. The introduction of machinery makes this possible. Your good citizen is the man who has still some leisure to read the newspaper and the magazine after his day's work, who has the time and the energy for recreation and for the creative thought which lifts his manual labor from the plane of drudgery.

EVA MCDONALD VALESH.

Labor Notes

Hours of Labor in France. — On March 30, 1900, a law went into operation in France limiting the hours of labor to ten hours and thirty minutes a day in all factories employing women and children as well as men. A report filling twelve columns of the Journal Officiel has just been made on the first year's working of this law. Other shops, employing only men, are governed by a law enacted under the Republic of 1848, prescribing a maximum of twelve hours' work. The new law necessarily caused a readjustment of wages, resulting in many strikes. One large establishment changed from work by the day to piecework, causing a strike which lasted six months, when the men accepted the terms offered by their employers. Another result of the law was that many employers at once discharged all the women and children, and thus escaped the operation of the new act. This was a great hardship, as, besides depriving a great many thousand people of needed work, it took from a large number of children their only means of learning a trade. In the shops where the employment of women and children was continued, with the reduced hours of work, there was an alarming diminution of the product. Employing classes complained bitterly of this law during the first few months of its enforcement. They now assert that if its operation has not been more disastrous to all the classes that it affects, it is because the last year, following the great exposition of 1900, was a year of general industrial depression.—Railroad Gazette.

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American Greed.—No one appears to be content with moderate returns. The American people pride themselves on their independence, but it is doubtful if there is any nation in the world which is less the master of itself. We all denounce extravagance and at the same time are jealous of and seek to vie with those who are a little above us in the scale of ability to spend. If we are employers we pay what we must, not what we might, for the service rendered us. If we are employes we demand all that is possible to obtain regardless of the value of the service. It so happens that at the present time the employer has the upper hand, but it is easily conceivable that the time may come when this condition will be reversed. Indeed, it is not necessary to be endowed with a prophetic vision to predict a time when because of the growth of capital it will become worth so little as to enable labor to dictate the terms upon which it (capital) shall be employed.

The chief desideratum in all of this discussion is that both sides shall be fair; and the greatest service that capital can render itself is to see to it that the workingman is liberally educated. To this end money should be freely used and it can come in no better form than through the payment of such wages as will enable the workman to support his family without the necessity of robbing his children of the time which should be spent in school. Railroads, more than any other class of employers, need intelligent service, and they are already beginning to appreciate the fact and act upon it. When this shall have become general and employers are ready to sacrifice present profits for future welfare, the beginning of the end of the conflict between labor and capital will have arrived.—Railway and Engineering Review.

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An English Investigating Committee.—Twenty-three skilled laborers from England, whom Alfred Mosely, a millionaire philanthropist of London, has sent to this country to observe industrial conditions, arrived in New York a little over a week ago and have since visited a number of eastern cities. They spent three days of the present week in Chicago, where they found the plant of Armour & Co. an object of particular interest. The members of the party, each of whom represents a particular trade, concede that in the utilization of by-products, in labor-saving machinery, economy of time and perfection of organization, American manufacturers undoubtedly lead the world. They are not, however, ready to admit that the condition of the American laboring man is better than that of the English laborer. Wages are higher, they say, but so are expenses, and working hours average longer than on the other side of the Atlantic.—Railway Age.

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Bro. Henry Zink, chairman of the Legislative Board of the B. L. F. of the State of Indiana, makes the announcement that the Board will meet in the city of Indianapolis on January 7, 1903, at Stubbins' Hotel. All lodges are earnestly requested to send a representative to this meeting, as matters of importance will be brought before the Board, matters that are of interest to every member in the State.

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Hard Times in Great Britain.—The industrial position and outlook have not improved. The report of the Labor Department of the Board of Trade, based upon 2,391 returns—namely, 1,184 from employers, 608 from trade unions and 599 from other sources—says: The general state of employment showed no appreciable change as compared with the month previous, but continued to be decidedly worse than it was a year ago, and is below the average of the last ten years in the same month. There is no consolation in this, and no encouragement.

In the 223 unions especally reported on there was an aggregate of 548,442 members, of whom 27,270, or 5 per cent., were reported to be unemployed—the same proportion as in the previous month. In the same month of last year the proportion was 3.7 per cent. The mean average percentage for the last ten years was 4.7 per cent.—London Engineering.

♣ Labor Press ♣

Chinese Exclusion Bill as Passed.

Without a doubt a majority of our readers are already acquainted with the particulars relating to the Kahn-Mitchell Chinese exclusion bill which received the support of organized labor everywhere, passed the House, but met its defeat in the Senate through the Platt substitute bill, which became a law. Editorial comment is superfluous in connection with the passage of this bill when the communication from the California Commission, which was ordered printed in the Congressional Record on April 28th, is reviewed. That communication reads in part:

To the Congress of the United States:

In pursuance of the trust reposed in us by the State of California and the citizens of that commonwealth represented in convention, we respectfully pray that the Kahn-Mitchell Chinese exclusion bill, which has passed the House of Representatives, be adopted, and that the Platt substitute bill, which has passed the Senate, be rejected.

In affirmative support of the petition that the Kahn-Mitchell bill be adopted we urge as to that bill:

That it preserves every provision of the present exclusion laws on which the nation is relying for protection against dangerous immigration of Chinese persons; and, by virtue of clear codification, lifts beyond the reach of pending litigation all of such provisions as are now attacked in the Supreme Court of the United States.

That it gives statutory form to a few Treasury rules which should have been statutory always, and which the Bureau of Immigration believes should be made inelastic—rules sharply distinguished from those properly subject to ready alteration.

That it is heedful of the needs springing from acquisition of insular territory since the passage of the exclusion act of 1893, and not only requires (in language not leaving intent disputable) that Chinese persons not of the five treaty-exempted classes shall not enter the insular territory of the United States nor pass thence to the continental territory of the United States nor from one group of islands to another, but provides the machinery for making those prohibitions effective.

That it takes cognizance of unfortu-

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nate omissions discovered in the present exclusion laws since 1893, and embodies the appropriate remedial recommendations of the Bureau of Immigration and the Department of Justice.

That it provides protection against the mercenary disregard shown by powerful trans-Pacific steamship corporations for the welfare of Caucasian seamen and the future of the American merchant marine and navy.

That it contains nothing indicative of a disposition on the part of the United States to modify or to reconsider the exclusion policy, but, on the contrary, by its omission of reference to the year 1904, is in the nature of a notice to the Chinese empire that this republic will not in that year ask that the Gresham treaty be then terminated, and will not look with favor on denunciation of that convention by the Emperor of China.

That it has the hostility of those transportation companies, both of land and sea, which from the beginning have antagonized the exclusion policy and which profit in ratio to the defectiveness of the nation's laws relating to undesirable immigration.

That is is opposed by that little group of California capitalists to whom the exclusion policy always has been hateful.

That it comes out of the West, and in its every stage has had the cordial and unwavering support of the tried friends of the exclusion policy.

That its administrative features have the approval of the Bureau of Immigration.

That it has the emphatic indorsement of the author of the Geary act.

That in the House of Representatives it has the support of every member from the Pacific coast except one, and in the Senate a corresponding bill has been given the support of every Senator from the Pacific coast except one.

That not only is it expressive of the will of the section most familiar with the Chinese question, but hundreds of thousands of the wage-earners of States not directly afflicted with colonies of Chinamen have petitioned the Congress to make it a law.

The objectionable features of the Platt bill are then set forth as follows:

We represent that the Platt bill should be rejected for these reasons:

First. It is not certain that it preserves all of the provisions of the present exclusion laws, and this because (a) the act of September 13, 1888, may be invalid for non-ratification of the treaty mentioned in it, and if invalid may be incapable of cure by the language of the bill in that regard; (b) if the act of 1888 be invalid, but can be validated by the language chosen, that language would revive the condition precedent by which the trouble was originally caused; (c) the restriction that the text of the Gresham treaty shall be the measure of the laws (and therefore the treasury rules and regulations) continued in force by the bill might prove to be a restriction cutting away much of the law and practice essential to accomplish what the Government is doing; for though the present statutes and substantially all of the present Treasury rules and regulations were within the knowledge of the negotiators of the treaty of 1894, and though that treaty was intended to give an international sanction to them not afforded by the treaty of 1880, nevertheless it might be argued, in the light of the recent Senate debate on the Chinese question, that the Congress intended by the Platt bill to retire from the position of reading the laws and practice of 1894 into the convention of that year and to cut the exclusion policy to the precise letter of that treaty.

Second. It adds another element of confusion to the disorder of the exclusion laws (laws now scattered in nine acts of Congress), and postpones needlessly the work of codification.

Third. It leaves subject to ready change primary Treasury rules (for instance, those defining the "exempt" classes of Chinese persons) that should never have been left subject to easy change and that ought to be given statutory form at the earliest possible time.

Fourth. It is open to dispute concerning the movements of the Philippine Chinese in that it may be argued that unless expressly included in the general prohibition those Chinese laborers who were in the archipelago at the time of cession to the United States could not be affected by it, because possessed of rights whereof they could not be divested by implication in that the general prohibition is not stated with desirable clearness, and in that the machinery for making the prohibition effective is not sufficiently provided.

Fifth. It does not define the term "Chinese" so that it shall necessarily include persons of mixed blood as well as those of the full blood, and this omission renders the protection of Hawaii, Porto Rico and the American mainland against the Philippine Chinese of little practical value, because there are hundreds of thousands of persons having a mixture of Chinese and Filipino blood, and this fact will lead naturally (if the Platt bill be adopted) to the practice of claiming a strain of Filipino blood as the "open sesame" to forbidden territory.

Sixth. It neglects to give the country the benefit of the Government's experience since 1893; and in this respect is notably advantageous to the American and foreign corporations, the Chinese highbinders, and others now profiting by the extensive smuggling of Chinese laborers across the Canadian and Mexican boundaries of the United States.

Seventh. It refuses to give just protection to the American seamen against that corporate greed which is relentlessly driving them from the Pacific ocean and making American ships training schools for an Asiatic navy.

Eighth. It holds the qualities of an invitation to China to denounce the Gresham treaty in 1904.

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Ninth. It has the endorsement of the railway and steamship companies hostile to the exclusion policy, and their lobbyists have been its most industrious friends.

Tenth. It has the hall-mark of those California capitalists (and of no other Californians) who would rejoice to see the exclusion policy weakened or destroyed.

Eleventh. It came out of New England in a spirit of intolerance of the bill put forth by the West.

Twelfth. It lacks the approval of the Government's experts in the departments having to do with the Chinese immigration.

Thirteenth. It has been directly condemned by the author of the Geary act.

Fourteenth. In the Senate, where alone it has been debated, it has been opposed by the foremost friends of the exclusion policy, including every Senator from the Pacific coast except one.

Fifteenth. Not only is it in opposition to the will of the section most vitally interested in the racial and industrial problem to which it relates, but it has been expressly denounced by organized labor throughout the country, regardless of State lines.

It would be hard to conceive a more distorted offspring out of the hands of lawmakers whose purpose is "to form a more perfect union, establish domestic tranquillity, etc., etc.," than the law as it has come from the mould. Viewed from the standpoint of the laborer, it appears defective, deceptive and inefficient. Perhaps his sensibilities are more acute than those who comprise the personnel of the Senate, which looks upon the substitute bill as a complete safeguard for 90 per cent. of our entire population who are classed as laborers. But giving the due credit to both sides, it is always admitted that none is so wise but he is bound to err in judgment at times, and if lack of experience surrounds conditions that are in the balance awaiting judgment, that judgment is more likely to contain a flaw than were the conditions reversed.

In adopting the Platt substitute the Senate showed a lack of proper understanding of a vital question to the laboring class. Their chief aim should have been to prevent any impairment of the welfare of the people whose welfare is directly affected by competition in the labor market. Commercial interests, it is true, need our most careful attention, and based upon our treaties with foreign countries, we depend to a great extent upon Congress to secure the best results. This fact was probably in the mind of the Senate when the commercial relations with China were weighed in the balance with the appeals of every laborer in the United States. No adequate consideration can be conceived which offsets the sacrifice of an open door to China. Who will profit by the sales of a few barrels of kerosene or a few bolts of cloth in China? Not the man who is forced to sell his labor in competition to the Chinaman. It must be remembered that "the value and distinction of America are not so much in its wealthy and leisure orders as in its toilers."

The effect of the law as it now stands admits a Chinaman if he comes to our shores as a citizen from any country on the globe whose treaty relations provide their citizens free access to this country. The loop-hole in this connection is so apparent that it is hardly conceivable that the Senate in its wisdom could not see it.

We trust Congress may see the error it has made and become more thoroughly acquainted with the necessity for legislation that will protect the laborers of this country.—Railway Conductor.

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The Public as Arbitrators.

The recent strife between labor and capital in the anthracite coal regions of Pennsylvania is focusing the attention of the civilized world to the necessity of more amicable relations between capital and labor. This struggle of labor for recognition and a humanitarian standard of living and of capital for supreme control, not only of the means of production, labor's products and the market therefor, but of the laborer himself, has brought about conditions which threaten a famine in what is virtually a necessity. Just how to bring about more amicable relations between labor and capital is the all-absorbing topic of the day.

Many methods are advanced, those receiving the most attention as the best practical solution being, in the instance of the great coal strike, government ownership and compulsory arbitration, while compulsory arbitration is offered as the general panacea. Government ownership savors too much of socialism to be acceptable to capital and the followers of capitalistic notions. The very word socialism, though it seeks to abolish those conditions which we are now suffering from and struggling to be freed from, but which our present form of government finds itself unable to abolish, inspires a greater fear than would the knowledge that we must live through the coming winter without the necessary heat with which to cook our food and protect us from the cold.

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The writer proceeds from the standpoint that capital's grievances against labor are artificial, the outgrowth of conditions brought about by its own unsound, makeshift economies in its treatment of labor. Capital applies sound economical principles in its treatment of all agencies connected with the production of commodities excepting the human agency of labor. Labor's grievances are as natural as labor, as natural as labor's aspirations for a higher standard of living, as natural as is our inborn desire to possess that which rightfully belongs to us. One of the great principles upon which our government is founded is the inalienable right of every man to enjoy the pursuits of life, liberty and happiness compatible with similar rights of his fellow man. If this does not mean that he shall enjoy the fruits of his labors and a just share of the fruits when his labor is associated with that of others, then it does not mean anything.

It is not apparent how compulsory arbitration is going to settle the differences between labor and capital without first establishing labor's rightful status as a productive factor. It is not apparent how compulsory arbitration is going to settle labor's grievances without settling the labor problem. Compulsory arbitration means the regulation of wages by law without remedying the evil of wage slavery. It means fixing labor's standard of living by law and makes labor's aspirations for a higher standard of living legally wrong. Labor can never accept compulsory arbitration and still aspire to elevation. Conciliation holds out greater hopes of settling the differences arising between labor and capital, when both are legally right, without in any way interfering with labor's aspirations to a higher standard of living and the right to gain it within the limitations of law.

The greatest argument ever advanced in favor of voluntary arbitration is offered by the Boot and Shoe Workers' Union through its system of organizing the employes of a shoe factory into a labor union and issuing a contract fixing the rate of wages and conditions, unless such conditions are changed for the mutual benefit of both parties to the contract, for a stipulated period all differences arising to be settled by a board of arbitration consisting of three members appointed by each of the contracting parties. Under this system strikes in union shoe factories are unknown. The public is the sufferer from disputes arising between labor and capital and is the logical arbitrator. Organized labor, through its union label, places in the hands of the consuming public the means of conciliating labor and capital. The universal purchasing by the public of goods bearing labor's union label would speedily bring about reasoning, amicable relations between capital and labor without interfering with the rights or aspirations of either. It would abolish strikes and the public inconveniences sequential to strikes. It would bring labor and capital to a realization that their interests are identical, not antagonistic.

The improvement in wages and conditions secured by organized labor through the organization of labor as a consumer would be incalculably increased if the public as a consumer would purchase union label goods. Organized labor seeks nothing if not a higher standard of living, and this means nothing if not a higher civilization for all mankind. No benefit can accrue to labor without benefiting society, or what we have termed the public. The public, through the union label of organized labor, has the power to conserve the rights of the public and bring about by conciliatory methods those amicable relations between labor and capital which would introduce a mutual study of the best economical principles compatible with the welfare of the public, labor and capital. Law can not, at least in its present form, redress the inconveniences thrust upon the public by the ever recurring disputes between labor and capital, if it could it could remove the cause.—Shoe Workers' Journal.

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Pension Schemes for Profit.

It has become quite the thing for railway corporations to demonstrate their regard for their employes by establishing a pension plan for the benefit of their men who have been a number of years in the service. At present there are a very few old employes who have managed to hang on to their positions, through some manner or another, but chiefly because they have been overlooked, who have served the thirty or forty years and who, having attained the ripe old age of seventy or thereabouts, are entitled to the generosity of the corporation they have served so well. But these men are very few indeed, not a handful as compared with the hundreds who stand below them in point of years in the service, but the purpose for which the inauguration of the plan is intended is served. The railway company gets a reputation

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for its generous treatment of its employes; it gets considerable advertising, of the corporation, philanthropic variety; it is applauded for unloading its old men, and it does not have to spend much money.

On every system where this plan of pensioning superannuated employes is in operation the idea has been received with great applause by the press and public, for it seemed to the uninitiated that the good times when the corporation lion and the labor lamb would lie down together, were about ready to commence work. It was natural that on the older systems there would be a few men who have been permitted to linger in the service, and these were made the bearers of the liberality of the company and served as the examples of the beneficence of the corporation that pensioned them. Inasmuch as these old men would have gone over the side anyhow, the pension plan was an excellent thing for them, for they received their twenty or twenty-five dollars per month, where without it they would have been without employment or means. Men who have reached the age of seventy and put in thirty years in railroad service won't raise much dust in their competition with their fellows for employment and so, for them, the pension system was, and is, a good thing.

The railroad systems of the times do not propose to be burdened with men of seventy years of age, nor do they propose to take any chances of having men of that age on their hands in the future. The old fellows are pensioned, the press waxes eloquent over the corporation's friendliness to labor, and, while the sentiment is propitious, the railway company plans to get its money's worth out of its employes, who look forward into twenty or thirty years of service at the golden reward that will be theirs when they have worked that many years, and have held their jobs. How many railroad men can look forward to thirty years of uninterrupted railway service? Not one in a thousand, starting from today, will ever reach the mark. The rules of the service invite violation and discharge if anything goes wrong. The exactions of the service will break down almost every man who does the work before he reaches the goal; injury and death will reap a rich harvest among them; the black list and the right of the employer to hire whom he pleases, together with the age limit drawn about employment in the near future will effectually protect the pension system and save every dollar that will be appropriated for its maintenance.

The pension system is intended to serve as a sentimental barrier between the companies and the public. There is no class of labor subjected to a finer degree of corporation discrimination than railway employes, and when the public understands the situation the companies are brought to book and they know it. Something must be brought forward as an excuse, and they bring along the pension system as the means to that end. They draw the line on employment as low as twenty-five years, and point to the necessary protection of the pension plan as an excuse for not hiring men older. The black list, discharge without good reason, ill treatment and everything that goes to create an unsatisfactory condition among the men are all accounted for by the statement that it is necessary for the safety of the pension plan.

There is just one good feature about the pension system. The old men will be discharged anyway, and what has been given them assists them that much. The pension plans now in operation will not pay the employes a dollar at the expiration of the next twenty years, for the employes will not be permitted to stay long enough to get a pension. A man who has passed fifty years is out of the business; he can not do the work unless he is favored by his fellows and the company, or has an exceptionally easy job. He is done before his pension is due. There are many men with twenty years of service behind them and a few of them will come into their fortune if they stay the limit, but the men who start now need not bank on ever becoming the recipients of the bounty of the corporation, for they can not last the game out.

But it serves, and we suppose all of us ought to raise our voices in unison and praise the magnanimity of the railway company that proposes to look after its old men in their dotage; but somehow, when we look under the cover of the scheme and see all there is behind its carefully woven fabric, the racket raised by our songs of joy do not keep any one awake nights. The few old men of today are paid by the companies that intend to take it out of the hides of the many old men of tomorrow.—Railroad Trainmen's Journal.

* * *

Georgia Child Labor Bill,

The Legislature of Georgia has before it a bill to regulate child labor in mills, factories, etc. We present a brief synopsis of the measure, as it was engrossed.

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Section 1 provides that no child under twelve years old shall be employed in or about any factory or manufacturing establishment, unless the child has a widowed mother or totally disabled father dependent on the child's labor, and without other means of support. No child under ten to be employed in or about, or allowed to remain idle in any mill or factory.

Sec. 2 enacts that it shall be unlawful for any owner, lessee, overseer, etc., to hire or employ any such child unless there is first provided and placed on file in the office of such employer an affidavit signed by the parent, guardian or person standing in paternal relation thereto, certifying to the age and date of birth of said child. Any person furnishing false information of the age of the child or children employed to be punished according to the Georgia law in such case made and provided.

Sec. 3 prohibits employing at night work any junior under the age of fourteen.

Sec. 4 prohibits the employment of any child in or about any factory, etc., who can not read and write his or her name and simple English sentences, this section to take effect September 1, 1903.

Secs. 5 and 6 we give in full:

Sec. 5. Be it further enacted that any person, owner, manager, superintendent or foreman who violates any of the provisions of this act, or who suffers or permits any child to be employed in violation of its provisions, shall be deemed guilty of a misdemeanor, and a fine of not less than $25 nor more than $200, or by imprisonment for not less than twenty-five nor more than 100 days, or by both such fines and imprisonment, at the discretion of the court.

Sec. 6. Be it further enacted that the grand jury shall have inquisitorial powers to investigate violations of this act, and that judges of the circuit and criminal courts of the State shall especially charge the grand jury at the beginning of each term of the court to investigate violations of this act.

This is altogether the best draft of a proposed child labor law we have seen. This being especially true of the provision for enforcing the law and punishing offenders who violate its penal provisions. And since Georgia has decidedly a habit of enforcing laws, we should have some hope of these regulations being made effective there, to a certain—or more likely to an uncertain—extent.

The exception in section 1 allowing children of poor widows and disabled fathers to be hired out to support the parent or parents will be much abused, of course. There are other points in the proposed law that are not thoroughly guarded, about which a good deal might be said, but this bill would do as a beginner, and it will prove to be nothing more than a short first step toward such thorough reform as the situation will finally require and demand. All such laws are worthless, and worse if they are not executed. And whenever an enlightened people shall begin to enforce the kind of law here synopsized they will begin to learn where it is inadequate and needs improving, strengthening, enlarging. Thorough reform will only come when a system of rigid inspection shall be established in every State and the truant officer becomes the colleague and second of the inspector charged to see that tender children shall not be worked in the mills.—The Tradesman.



Advance in Wages.

The demand for better wages by the whole list of labor organizations, and they are legion, based upon two self-evident factors, greater profits for the employer and increased cost of living, has resulted in an increase of wages in many lines of trade, and in many other instances higher wages and shorter hours. Many strikes have occurred, based upon demands for better wages and shorter hours, which have been generally successful, some of them lasting nearly six months, notably the street car strike of Scranton, Pa., public sentiment so strongly favoring the demands of the men that they refused to patronize the road, and at the end of six months nearly every demand was granted. The representatives of the organizations in train service have been for months persistently demanding an increase on two principal grounds, greater responsibility because of larger engines and trains, and greater cost of living. Twenty-five new contracts involving better wages and conditions for the engineers, have been made since May of this year.

The Pennsylvania Company was asked for a 10 per cent. increase through the G. B. of A. last May, and a meeting composed of a large delegation of chairmen of the General Board of Adjustment of many trunk lines was held in Chicago for the purpose of discussing the question of asking for a general advance and adjourned subject to another call, and the railroad clerks, recognizing the necessity of getting together if they accomplished anything, formed an organization, which

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grew into formidable proportions in less than six months, the main object being a demand for large increase in wages. The switchmen in Chicago made the demand and after compromise concessions on both sides, a material advance was granted, thus establishing a rate which will doubtless spread out from Chicago into other fields, and a corresponding increase be made voluntarily, or on demand of the employes. It has assumed a sort of tidal wave of demands, and public sentiment is on the side of those who perform the service. Many of our railroad managers have evidently concluded that the demand for an increase is just, the Pennsylvania leading off with a 10 per cent. advance in all departments, followed by the New York Central, and other leading Eastern roads intimate that there will be a readjustment of wages in the direction of an advance, and they are to be highly commended for it. The men are entitled to it from every view-point.

The newspapers seem somewhat skeptical as to motive. The New York World figures on the get-even plan, and says:

If all the railroads increase wages 10 per cent., in figures it would amount to $51,953,835. A similar increase in freight rates would bring in $104,925,632, leaving a profit to the railroads of $53,071,797.

We do not believe the companies granting the increase will make it an excuse for greater profits, but, if necessary, they will doubtless do as other business enterprises do—add enough to insure legitimate profits to the money invested.—Locomotive Engineers' Journal.



Question Legislative Candidates.

In many of the States the State Federations of Labor are questioning all the legislative candidates as to their attitude toward the demands of organized labor. In other words, they are asking each candidate to pledge himself in writing to work and vote for the labor program or openly acknowledge that he is against it.

This means that organized labor has discovered a method whereby it brings to the front the issues which most of the political machines and bosses endeavor to keep in the background.

The results are far-reaching; instead of squabbling over minor issues, there are brought to the front the vital issues, and as 99 per cent. of the people are agreed with organized labor that Majority Rule (the referendum and the initiative) should be installed and political corruption abolished—for that is what it does—the questioning of candidates will at once result in the restoration of popular government.

That such will be the case is demonstrated by what has occurred. In South Dakota, Utah, Oregon, San Francisco and Detroit Majority Rule was adopted without becoming a party issue, because no man in political life in this country can afford to openly oppose the system. Therefore, by questioning the legislative candidates, organized labor forces into the campaign the question of Majority Rule, and, as no candidate can hope to receive a majority of the ballots if he is publicly known to be opposed to Majority Rule, the result is the election of men who are pledged in writing to vote for the Referendum and the Initiate, and who will be obliged to live up to their agreement. There will be a practically unanimous public opinion for the proposed system—in Oregon the vote was 12 to 1—and, furthermore, the agreement will be signed by the legislators. This is much more binding than a party platform.

With the establishment of Majority Rule in combination with representative government, the monopolists' privileges will quickly be withdrawn, and a whole series of progressive changes will be instituted. Such are the teachings of history; see the record of progress in Switzerland and New Zealand.

All this can be instituted by organized labor if it will systematically question the candidates for legislative office. The Missouri State Federation of Labor is taking the lead, and it is to be hoped that the legislative committees of organized labor in all the States will join in the good work.—Chicago American.

A Socialist's View.

To those who have paid no attention to it, it would be a revelation to know the number and extent of the labor press of the United States. Every little city has one and the larger cities a score of well printed, well edited papers of large circulation, devoted entirely to the industrial affairs of the various working classes. There must be two or three thousand of these papers and magazines, some with circulation mounting into the tens of thousands. Some of these papers are devoted to the industrial affairs of a single vocation, others combine the news concerning all the trades in a city. I had this thought forced on me the other day when I picked up the Labor Clarion of San Francisco, and scanned its sixteen

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pages of well-edited matter, giving a view of the whole industrial side of that city. I believe the labor press today has more influence with the working people than all the other newspapers. There are more than two millions of organized labor and they are the only solid front in the industrial field against the encroachments of the octopus of monopoly that is winding its slimy form along devouring the industries and incidentally the people attached to them. These millions of workers are learning the art of governing industries; their meetings are training many an unconscious Congressman and United States Senator and statesmen whose names will thunder down the corridors of time. In these meetings is the beginning of that industrial government that is the dream of the Socialist, when the industries shall become public property and governed by the workers, who will make all the rules and regulations governing their employment, without the intervention of any capitalist or boss other than they shall elect to carry out the rules they shall themselves adopt. This training is a necessary thing to be done before they are qualified for the power that will shortly be placed in their hands. It is a part of the evolution of industry just as much as the concentration of production in more gigantic factories by the trusts, which latter are preparing the industries more readily for the hand of labor. The building of the new order is going on in every direction with all possible speed. The capitalists are hurrying their side, but not more rapidly than labor. In this same paper I note that the number of labor unions in the State of Washington has increased 60 per cent. in ten months. Surely capital has not done its work of concentration faster. As capital is combining the smallest lines of business, so labor is combining in the same way—even the newspaper writers of San Francisco have formed a union, and this will likely follow in other cities. Side by side capital and labor are building up their machines, but this can not go on forever. There will come a time when there will be a clash, when labor shall awaken to a higher sense of its power and its rights, and then—well it will take both the industrial and the political clubs and master Mr. Capitalist, and out of its victory will rise the new industrial Republic that is to crown a thousand years of glory and peace and good will to men. And some of the brightest names in the galaxy of history will be born. And unborn generations will sing peans of praise to them as we now do to Washington, Lincoln and others who lifted the race higher by their integrity and ideals. Young man, young woman, join a labor union, and if there are none in your vocation, organize one, and be a factor in the great work they are doing. They are building a republic of the world, a parliament of humanity.—Appeal to Reason.

Labor Laws Not Enforced.

We had no idea there were any "editors" in Tennessee who would pretend that the child labor law was ever enforced or intended to be enforced. It provides for no factory inspection to find out whether children are worked. The State inspector has nothing to do with or about the law. The same statements apply to Kentucky and Louisiana. Even the Alabama law forbidding the employment of juveniles in and about mines is habitually disregarded by employers. The laws disgrace the States that enacted them, without the slightest purpose of making them operative. They were passed as sops to quiet union labor leaders, and solace the professors of labor reform. When a Tennessee demagogue, of the hustings or the sanctum, is told that babes are worked in the cotton mills of the Carolinas, he proudly points to our dead letter law on the subject, and tells the people that it's bound to be enforced "if" only the grand juries would do their duty!

Oh, yes, surely; and if the grand juries were very energetic in following the path of duty a good many politicians would be in jail for stealing elections and other like crimes.

It is a fact, proven by the whole history of the subject, that anti-child labor laws can only be enforced by a rigid system of factory and mill inspection, rigidly, fearlessly, unrelentingly carried out. And the one State, Massachusetts, where such labor has been completely abolished, found it must have a truancy law vigorously executed, to insure the execution of the child labor law.—Chattanooga Times.

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Subscriptions for the Magazine

THE LOCOMOTIVE FIREMEN'S MAGAZINE is well worth twice the price of subscription, if we consider the immense amount of technical matter contained in each number, and consider the price of other technical journals. The subscription price is $1.50 a year, and any person who would subscribe at all for the MAGAZINE will not hesitate to pay that much.

It would be of great benefit to the MAGAZINE if every engineer, fireman and roundhouse man in North America were a subscriber to the LOCOMOTIVE FIREMEN'S MAGAZINE—because the increased revenue from such a large subscription list would provide means for adding new and valuable departments to the book.

It would be of great benefit to every engineer, fireman and roundhouse man in North America if he were a subscriber to the LOCOMOTIVE FIREMEN'S MAGAZINE—because each one would obtain technical information that would fit him for promotion, and help him to hold his job when he was promoted.

It would be of great benefit to the Brotherhood of Locomotive Firemen if every engineer, fireman and roundhouse man in North America were a subscriber to the LOCOMOTIVE FIREMEN'S MAGAZINE—because the *net* expense of publishing the MAGAZINE would be greatly reduced to the membership.

It would be of great benefit to all railway companies if every engineer, fireman and roundhouse man in North America were a subscriber to the LOCOMOTIVE FIREMEN'S MAGAZINE—because these men would receive a technical education, at no expense to the companies, that would make of them more valuable employes.

Such truths being true, why does not every engineer, fireman and roundhouse man in North America subscribe for the LOCOMOTIVE FIREMEN'S MAGAZINE? Because, in the first place, a large proportion of the engineers, firemen and roundhouse men of North America do not care to devote any time to studying their business; they sleep on their rights until the day of promotion comes, then fail! If already promoted, they dream away their days until they are "up against it," and then fail! From this great army of "don't cares" we can expect but few subscribers, for if they were members of the B. of L. F. and received the MAGAZINE each and every month, they would not read it! So, therefore, we must look to the engineers, firemen and roundhouse men who are seeking knowledge, who are trying to keep up with the times, if we are to build up a large subscription list.

There is another reason that we have not every engineer, fireman and roundhouse man as a subscriber to the LOCOMOTIVE FIREMEN'S MAGAZINE. We have no solicitors in the field, working for the MAGAZINE—but the time has now come when we want them. A call is now made for volunteers. Surely one man in every lodge will volunteer to act as "club raiser." In the past there was no reason for such a call, because the MAGAZINE was sold for less than it cost—and subscription solicitors were not paid for their time. It is different now. There will be a profit to the Brotherhood on every subscription received—and a profit to the solicitor for every subscription received.

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An appeal is here made for the assistance of one wide-awake club raiser in every one of the 618 lodges of the Brotherhood. If you are half sick, worn out and tired from firing a "battle ship," lay off one trip a month and make just as much money by securing subscriptions for the LOCOMOTIVE FIREMEN'S MAGAZINE. If you are out of a job, you can make a month's wages by doing a little hustling for the MAGAZINE. If one man will volunteer to undertake this work in each lodge he will find that all of the members will gladly assist him to secure a $50 cash premium. If you are interested in this proposition, write to the Editor for particulars.

This issue is not a fair sample of what the MAGAZINE will be during the year 1903, for the task of moving the Magazine Department from Peoria, Ill., to Indianapolis, Ind., was undertaken at the time that the Editor should have devoted his attention to editorial work—and the job of moving is demoralizing to an established business. This number is 32 pages less than the standard size because of the many complications incidental to the removal, and any delay in getting the January number out on time may be charged to the same cause. This being the first number printed by the Indianapolis printers, handicapped as they were by our removal troubles, we may expect future issues to be better than this one—but if there were no improvement, editorially or typographically, the LOCOMOTIVE FIREMEN'S MAGAZINE is worth more than $1.50 per year to every engineer, fireman and roundhouse man in North America.

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Indianapolis, Indiana.

Again attention is called to the necessity of addressing all communications intended for the LOCOMOTIVE FIREMEN'S MAGAZINE to Indianapolis, Ind., instead of Peoria, Ill. All requests for changes of address, all complaints of failure to receive the MAGAZINE, all remittances for subscriptions, all matter for publication in the MAGAZINE, all correspondence concerning advertising, in fact, everything concerning any feature of the MAGAZINE, should be addressed to W. S. Carter, Commercial Club Building, Indianapolis, Ind.

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Sparks.

Lodge 322, B. or L. F., has adopted suitable resolutions on the death of Bro. J. M. Strinsky, and the members extend their heartfelt sympathy to the bereaved family and relatives of their deceased brother.

Fountain City Lodge 619, B. of L. F., recently gave a grand ball at Fond du Lac., Wis., which, according to a local paper, was one of the most successful, both from a financial and social standpoint, ever given by the firemen in that city.

It will, perhaps, be of interest to the members of the Brotherhood of Locomotive Firemen to learn of the marriage of William S. Carter, Editor and Manager of the LOCOMOTIVE FIREMEN'S MAGAZINE, and Miss Julia I. Cross, of Peoria, Ill., on November 27, 1902.

Bro. R. P. Jordan, of Lodge 325, writes that he, with one other brother, recently passed an examination for the position of engineer on the Ft. Worth & Denver Railroad, and is doing well. The brothers have the best wishes of the members in their new field of labor.

Cards announcing the marriage of Bro. Avery C. Moore, a member of Lodge 133, and a member of the Idaho Legislature, to Miss Maud Gertrude Pepperman, at Montgomery, Ala., Thursday evening, December 4, 1902, have been received. Brother Moore and his bride have the sincere wishes of his hosts of friends for a long and happy wedded life.

Bro. William Wadsley, of Lodge 149, writes the MAGAZINE that he has the following numbers of the LOCOMOTIVE FIREMEN'S MAGAZINE which he is willing to dispose of to anyone desiring same: Complete files for the years 1892, 1893, 1894, 1895(all of 1896 except March, all of 1897 except April, all of 1898, 1899, 1900, 1901 and 1902. Anyone wishing to procure files of the MAGAZINE for the years named should address William Wadsley, 544 E. 155th Street, New York City.

One of the most gratifying affairs since the adjournment of the convention was the presentation of a chest of silverware to Mrs. C. E. Schaff, wife of General Manager Schaff, of the Big Four Railroad, by Grand Master Hannahan and Grand Secretary and Treasurer Arnold, on behalf of the Brotherhood of Locomotive Firemen. This presentation was made as a token of appreciation of the members of the Brotherhood of Loco-

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motive Firemen, and was ordered by the recent convention of the Brotherhood. Brother Hannahan has received a letter from Mrs. Schaff in acknowledgment of the present, in which she says: "I request you to convey to them (the members of the Brotherhood) my sincere thanks and deepest gratitude for this elegant remembrance."



A SOUVENIR OF THE CHATTANOOGA CONVENTION

President Roosevelt in center; Grand Master Hannahan at left; Grand Secretary and Treasurer Arnold at right. From a photograph copyrighted by Underwood & Underwood, of New York.

Bro. Ed M. Stannard, of the Stannard & White Company, manufacturers of locomotive cab seats, cushions, etc., advises the MAGAZINE that his firm has consolidated with the Gold Medal Camp Furniture Company, of Racine, Wis., and are engaged in moving their plant to that point, but Brother Stannard expects to continue to reside in Appleton. The cab seats and cushions manufactured by this firm are well known among enginemen, and it is hoped with their increased facilities that they may do a highly successful business.

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Forum

The General Chairmen's Association.

What is the matter with the "General Chairmen's Association?" There was an article in the September issue of the MAGAZINE relative to this association, and I have seen nothing since in regard to it.

If I am rightly informed, there was a clause added to our constitution which will make the association a lawful body of the B. of L. F.

I, for one, think the delegates to the Eighth Biennial Convention did the right thing. What do you think, brothers? I would like to hear from the rest of the brothers, especially the general chairmen.

A GENERAL CHAIRMAN.

St. Louis, Mo.

Brotherhood Topics.

Quite often the officers of a subordinate lodge, particularly the collector, will be questioned closely, either verbally or by letter, by some brother who desires to know the whys and wherefores of this or that proposition or assessment. Sometimes these questions are so worded as to convey the idea that the inquiring member considers the addressed officer as wholly responsible for his ignorance concerning the affair he asks about, and possibly for the matter itself, when no one is to blame except the member himself. If he will look through the pages of his MAGAZINE, and read as he looks, he will discover that everything of general interest to the Brotherhood is chronicled in its pages.

The doings and assessments of joint boards or local lodges will not be there, but the other will, and if he will read what is printed purposely for his information he will be much more enlightened on passing events, and have less complaint to make of his local lodge officers. Everything that can safely be published of the Grand Lodge proceedings is placed in the columns of the MAGAZINE, especially to benefit those brothers who are so situated that they can not attend meetings.

Remember, brothers, as an order we can not stand still any more than we can as individuals. So let us, one and all, try to advance our Order in the struggle of organized labor.

W. L. FRENCH.

Fremont, Neb.

Twentieth Century Railroad Men.

The life of the railroad man of today differs in many respects from that of earlier days, who, as the old colored man said, "climbs on top of de car and stops her by screwin' de auger into de ground." At that time they were accused of clannishness and being averse to mingling with outsiders, but now they are received with cordiality by all clases, and their social life expands, and is equal to that of any calling. Their conversations are no longer restricted to railroad topics and heroic tales of close calls, etc., but among them is ability to discuss intelligently any and all current happenings that are prominent in the press.

When an official employs a man, as a rule, he accepts him at the beginning of his manhood, and selects him not for what he can do at present. but for profitable development and increased responsibilities in the future. It is a matter for regret that the railroad men of bygone days were considered an inferior class of people, yet if this be true it was due to the hardships and disadvantages under which they labored, and which at the present time are lightened or entirely overcome by modern inventions. They had not the support and encouragement of organization, which today is the life of the railroad men, and enables them to receive a just compensation for their dangerous calling.

Today we are in an era of federation and combination to keep in pace with the industrial development of the country. Our organizations are a necessity, and have proven to be instrumental in elevating the standard of citizenship in our ranks, and in them are found men of exalted station, who began their careers as employes of some railroad.

Experience has taught us that by working as a body and in complete harmony, we achieve greater success than we could by individual effort. A strike, being viewed with deepest regret by both employer and employe, is called after serious consideration, and only as a last resort.

The advancement of the railroad men will progress even more rapidly in the future than in the past, and the public will awaken to a greater realization of the honor and importance of this following.

A. R. LAYMAN.

East St. Louis, Ill.

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In the Field

Second Vice Grand Master.

In assuming the duties of the office of Second Vice Grand Master of the Brotherhood of Locomotive Firemen, which was on November 1st, I was instructed by Grand Master Hannahan to visit all lodges on the N. Y. C. & H. R. R. R. system, and it affords me great pleasure to report that I find the organization on said system in a splendid condition, both numerically and financially, and the members taking a very active part in the proceedings of their lodge meetings, and very energetic in advocating the aims, principles and purposes of the Brotherhood of Locomotive Firemen.

My first official visit was on November 2d, meeting with Hudson River Lodge 349, of Union Hill, N. J., with Bro. C. H. Umpleby in the chair, who is a very popular master and ably assisted by Brothers Swinburne, Lawless, King and Dorley.

On November 4th I had the pleasure of visiting Buffalo Lodge 12, of Buffalo, N. Y. This lodge is in the best of condition and great credit is due to the Master, Bro. Jas. H. Kane, who, by the way, is the traveling fireman on the N. Y. C. & H. R. R. R., and the boys inform me that he is so proficient in his duties that he is practically a smokeless fireman. While attending this meeting I was informed that the lodges in the city of Buffalo have already appointed a committee of arrangements to prepare for the Ninth Biennial Convention, which will be held in the city of Buffalo in September, 1904. And they have, at this early date, had a joint meeting and selected officers to carry out all arrangements, which consists of the following: Bro. P. J. McNamara, Lodge 12, general chairman; Bro. L. E. Gingrant, Lodge 241, secretary; Bro. W. A. Astin, Lodge 85, treasurer; and while it may seem premature to predict, at this time, still, the outlook for the Ninth Biennial Convention is very bright, and it will undoubtedly be a success when there has been such able and enthusiastic brothers selected to carry out the duties that are required in order to make a convention a success in all particulars. Let me say to the brothers of the city of Buffalo that they made no mistake in their selections.

November 5th I visited Lake Erie Lodge 241, of Buffalo, N. Y., and found the lodge in good condition. Bro. Thos. B. Ferguson, Master, extended to me the courtesy of presiding over the meeting, and everything went along very nicely and without interruption until we came under the head of "Good of the Order," when Brother Ferguson arose and asked for a recess of fifteen minutes, same being granted, and to my great surprise the large folding doors at the rear of the hall were thrown open and there appeared and was admitted the uniformed drill corps of Holly Lodge 70, Ladies' Society to the B. of L. F., which, assisted by Sister L. Shea at the piano, went through their drill in a very able manner which displayed a beautiful exhibition of military discipline. The drill team has been in existence for some time and is ably drilled by Captain Grace .Pierce, assisted by fifteen of the other sisters of Holly Lodge 70. Holly Lodge, which is the mother lodge of the city of Buffalo, and I understand has the largest membership of any auxiliary to the B. of L. F., is doing excellent work in the vicinity of Buffalo. Those gatherings in which I had the pleasure to participate on that occasion are productive of great good and should tend to stimulate activity; it should encourage the members and inspire them with more zeal and greater enthusiasm as to the aims, principles and purposes of our organizations, which will naturally bring about good results in the ranks not only of the Ladies' Society but the B. of L. F. as well.

On November 6th I went to Rensselaer, N. Y., and had a very interesting meeting with East Albany Lodge 215. Master Brother Haight in the chair. This lodge is in good condition, all officers attending strictly to business. Bro. John W. Reed is the popular secretary and Brother Rowlings is the "watch-dog" of the treasury.

On November 7th I was again in Buffalo, meeting with Admiration Lodge 101. Brothers Hugh Cream and J. H. DeSalis met me at the hotel and escorted me to their lodge rooms, where I met quite a large delegation of Lodge 101 and visitors from Lodges 99, 316 and 12. I had a very pleasant meeting and the Lodge is in good condition. Bro. Hugh Crean is earnestly looking ahead for the good of the Brotherhood in general and he is ably assisted by Master Brother Mansfield, Secretary Hill, and Brothers Fank and Richel.

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(1) B. L. F. Special Train in Chickamauga National Park. (2) Group of delegates and ladies. (3) On Lookout Mountain. (4) Changing engines, Special Train, Somerset, Ky. (5) Special Train, homeward bound, Oakwood, Tenn. Photographs by Brother S. W. Beal of Lodge 318.

SNAP SHOTS FROM CHATTANOOGA CONVENTION

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November 9th I was in Oswego attending regular meeting of Frontier City Lodge 92. Oswego is a beautiful city, stuated on Lake Ontario. It has many beautiful residences and streets lined with shade trees on either side, which must be in the summer time very attractive and picturesque. I had the honor to preside over this meeting and I must admit that it was the most interesting and enthusiastic meeting that I have had the pleasure to preside over since entering upon the duties of my office. It might be well to mention a few of the names of brothers who contribute largely toward making this lodge the banner lodge in this locality: Brothers Gorman, Brennen, Johnson, Dowd, Reiley, Harvey, Gorbitt, Master F. J. Welsh, and Secretary Walrod. The initiatory ceremony was performed upon two candidates. While in Oswego I called upon and had the pleasure of spending a few pleasant hours with Bro. P. Fennel, better known as "Shandy McGuire, the Brotherhood Poet." Brother Fennel is enjoying the best of health and wished to be kindly remembered to all his friends.

On November 11th I visited West Shore Lodge 213, of Syracuse, N. Y. I find this lodge in good condition. The Master, Brother Steinburg, is working very hard to keep it up to the highest standard, and he is assisted greatly in his good work by Brothers Kelly and Herlehey.

November 12th found me in Corning working in the interest of Fellowship Lodge 121. This was not the date of their regular meeting, and I could not hold a special meeting, as I desired, on account of all lodge rooms being occupied on that date by other societies. I, however, had a very pleasant talk with several of the members, and they assured me that everything was going along smoothly and the lodge was in good condition.

On November 14th I was again in Syracuse meeting with Fortune Lodge 120. This lodge is composed of enginemen principally from the Rome, Watertown and Ogdensburg Division, and Brother Newcomb, the Master, informs me that they have them all in the Order who are eligible. Brother Forsyth is doing all that he can to make this the banner lodge of Syracuse. There was visiting members from Lodges 213 and 334. We had a very interesting meeting and the lodge is in good condition.

November 16th I went to Schenectady to visit Lodge "18-K" 210, but owing to the unusually heavy business at this point lodge was unable to hold meeting on account of members being out on the road. I had, however, a talk with Brother Vrooman, Secretary, and a few others, and they reported that the lodge was in good condition.

On November 18th I went to Syracuse, N. Y., and had Bro. James P. Deveraux, of Fortune Lodge 120, examined for total disability. In the evening I had the pleasure of meeting with Long Doubler Lodge 334, of East Syracuse, and great credit is due to the Master, Bro. O. D. Hopkins, who is also Vice-Chairman of the Joint Protective Board on the N. Y. C. & H. R. R. R.

November 19th found me at Jersey City, N. J., where I attended the annual reception given by Erie Lodge 543. This event is looked forward to with a great deal of pleasure where a large number of the Erie firemen, and their families, meet annually and exchange friendly greetings. Bro. Joseph Coots acted as master of ceremonies, and by the efficient and able manner in which he performed his duties, one would think that he was presiding over a gathering of lustrous "400," and which would, no doubt, have been enviable to Ward McAllister. For information of the friends of Earnest Ingling, of Lodge 543 and a fireman on the Erie R. R., all will be pleased to know that he has been appointed assistant road foreman of engineers on the New York division. Knowing him as I have, personally, for a number of years, I can say with all sincerity, that the appointment is a creditable one. I wish him entire success in his new field.

November 20th I had the pleasure of attending regular meeting of Metropolitan Lodge 363, of New York City. There was an exceedingly large attendance at this meeting and all taking a very active part in the proceedings, and very enthusiastic in the general welfare of the Order. Bro. Simon McAuliffe was the center of attraction and proved himself equal to the occasion. Great credit is due Brother Calkin, Master, who is assisted greatly by Brothers Murphy and Case in making this lodge one of the foremost lodges in this section of the country.

November 21st found me in Buffalo meeting with Omega Lodge 316. This lodge is progressing rapidly and in good circumstances in all particulars. Master Brother Graham, who is also chairman, is handling his duties nobly and is certainly a credit to the Order. Bro. A. Nicol is carefully guarding the financial feature, consequently the lodge is in good hands.

November 22d, I went to Rochester, N.

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Y., to attend a specal meeting of Lodge 99. This lodge is certainly a great credit to the Brotherhood as it is one of the best, both numerically and financially, as well as influential, lodges in this part of country. Brother Pruyn, Master of the lodge, who has served as Grand Chaplain at several Biennial Conventions of the Brotherhood, is serving his fourteenth consecutive term as master. He should certainly feel proud to be the recipient of such honors conferred so many times, which is attributable to his high executive ability. At the conclusion of a very interesting meeting we formed a lne and marched to the Whitcomb Hotel, where a seven-course dinner was served, and the way the boys partook of the delicacies



JOSEPHINE C. WATTS,

Editress of the Ladies' Society Department of the Locomotive Firemen's Magazine.

proved conclusively that they could handle themselves at a banquet table as well as on the foot-board. The next time I go to Rochester, boys, I will go prepared.

November 23d I went to Utica and had a very interesting meeting with Rickard Lodge 229, and while this lodge is in good condition, it surpasses any that I have had the pleasure of meeting with in performing the initiatory ceremony. Master Brother Kane and Brother Smith, Secretary, keep the goat in excellent trim. No doubt the candidates will long be impressed with the impression he left.

November 24th found me in Niagara Falls meeting with Cataract Lodge 362. This lodge has the smallest membership of any on the line of the New York Central R. R., which is attributable to the small terminal, as there is not a very large number of firemen laying over here. The boys, however, are getting along nicely and exceedingly great credit is due to the Master, Bro. C. A. Baker, for the able advice and encouragement to the members at all times. After adjournment we went to a hotel where we partook of a light supper. Brother Murphy acted as toastmaster and did credit to himself. Bro. Tom Canavan sang several songs—and won the heart of the blonde lady waitress. Bro. D. Sinclair carried off the honors as being the ablest story-teller, which was very appropriate for the occasion. Keep up the enthusiasm boys; you are working for a good cause.

November 25th I went to Albany and had the pleasure of meeting with Albany City Lodge 230. This lodge has a very large membership and is in good condition and judging from the number of applications read by the secretary at this meeting, its future prospects are very encouraging. Bro. B. J. Buhl, who is carefully guarding the interests of all the brothers, informs me that he expects to make this lodge the largest and best in this part of the country. Bro. Wm. C. Geisel, the popular secretary, is certainly right up to date in the performance of his duties. Bro. William Booth is also contributing his share towards making the lodge a success in every particular. Bro. Joseph Walrod, General Chairman of the Joint Protective Board of the New York Central System, and Bro. Norman N. Hicks, Master of 18-K Lodge 210, of Schenectady, were present. This was a very interesting and profitable meeting, and I trust that our labors there will be fruitful of good results and will redound to the credit of the organization.

On November 26th I went to Oswego to attend the annual ball and reception given by Frontier City Lodge 92. The attendance was estimated to be about six hundred. The hall would not accommodate all the people who came and quite a number did not enter owing to the large crowd. The event was a grand success both socially and financially, and everybody enjoyed themselves to their heart's content. During the evening an elaborate banquet was served in the Hamilton Hotel dining rooms. Bro. P. Fennel, better known as "Shandy McGuire," was an honored guest, and he enjoyed himself and pleased everybody, as in days of yore, by his witty stories and reminiscences of railroad life.

I endeavored to get a special meeting with Empire Lodge 212, of Watertown, but my letter was not received in time to call same, consequently I did not meet

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with them, but just as soon as I can arrange to meet them on their regular meeting it will be a pleasure to do so.

I was not successful in getting a special meeting with Bald Eagle Lodge 418, of Jersey Shore, Pa., as I intended, on account of their hall not being in condition. I will endeavor to arrange to call upon them some time in the near future.

The Joint Protective Board of the N. Y. C. & H. R. System have, this month, secured a new schedule of wages and rules governing the enginemen on the system, and I believe it is the best as a whole, in this part of the country. Great credit is due the board for their efficient service. This concludes my labors along the line of the N. Y. C. & H. R. R. R.

I have received a telegram from Grand Master Hannahan to take up work along the Lake Shore & Michigan Southern and Nickel Plate R. R. from Buffalo to Cleveland.

In my next letter I will advise you what success I have.

TIMOTHY SHEA.

Third Vice Grand Master.

Time in its flight waits for no one. It has no choice of persons, or anything else; its only mission is to *go*. Never for an instant does it stop or even falter in its journey. From the moment of our advent in this life it points to our final end, hurrying, as it seems, all the time in its awful flight, and as we near approach the destination of our life-time, it seems to say, "Hurry! we have no time to spare, else we lose all there is here and that which awaits us in the unknown where our final destiny will be forever, and from which no weary traveler will ever return to tell us whether a misspent life or a good one has been rewarded by its demerit or merit as the Giver of all good has seen fit to judge the one who has given an account of his stewardship to Him when time is no more."

As we write this, we are on the threshold of the year 1903 with 1902 passing away as fast as time in its flight can carry it. Let us ask, What have we done as members of the Brotherhood of Locomotive Firemen to deserve merit marks for the good work performed? Have we attended meetings regularly, paid our dues promptly, and lived in peace and harmony with our brothers? Or have we seen fit to do the reverse and be a fault-finder, having nothing but demerit marks at the end of every chapter in our lives? Remember, as we sow, we reap, and we must not forget that to sow seeds of dissension and discord will not bring a bountiful harvest of hope and cheer. That the great majority of our members have done their part can not be denied, though a few have failed we do not doubt. That the success of the Order is assured is only to point to the good work done, and we hope the future will be just as full of promise and that promise realized as in the past. Let us hope so, let us go a step further and make it so. It all depends upon us whether the final outcome will be a good harvest or a poor one.

As I write for the January MAGAZINE, I wish to say that my trip to the Pacific coast was a good one. I stopped at each place along the way where there was a lodge and held good meetings wherever it was possible to hold a meeting at all, as this is the time of the year that the far West furnishes plenty of work for the engineman and trainman.

My visit to Houston, Tex., was a pleasant one, and good meetings were held with No. 146. This lodge has exceeded all expectations in the last four years, and we can thank the brothers who have been so zealous of their welfare which enabled this lodge to gain 110 members in so short a time. The sisters of the Ladies' Society come in for their share of praise for their good work, and we will not forget them. Their presence at the public meeting was appreciated, and the boys made happy with refreshments which the sisters kindly and willingly served.

The trip to Galveston was fruitful, and had a good meeting with No. 115, and I will make an earnest effort to go there again as soon as possible, in order that this lodge may be made as strong as before the great storm in 1900, when lives and property were sacrificed by the Storm King, who left naught but heart-rending distress in his wake. After visiting with our members in Galveston, I turned back to Houston and endeavored to hold a meeting with Lodge 506, but owing to the heavy business on the Houston & Texas Central R. R., it was out of the question to hold a meeting, as the members were out on the road. Brother Mitchner, one of the most popular members of this lodge, made every effort to get the boys together, but it was out of the question—they were too busy. Some could not get away from work, while others were tired out on account of being out on a long hard trip.

It became necessary to stop off at San Antonio on important business connected with Lodge 145. While there I took ad-

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vantage of the occasion and held two good meetings with No. 145 and one with No. 263. One thing is certain: it takes but a short time to get up a good meeting with No. 145; they are always ready for one. The afternoon meeting with this lodge was a business one all the way through. Brother Barr, the Master, is one of the best, knows his business, always has a good lodge, and knows how to handle it. The night meeting was for social purposes and as is usual on an occasion of this kind, the members of the Ladies' Society were out to help make the time pass pleasantly. They came prepared, and made the brothers happy with something good to eat. On this occasion we missed Brother McGinnis, who was confined to his home on account of an accident. This brother is an entertainer, and is always prepared to do his part when the opportunity presents itself. Our esteemed Brother Stone, of No. 263, was also there helping the ladies. They know who to get to help them out on occasions of this kind. The last night in San Antonio was put in with Lodge 263, and an interesting meeting was held. The attendance of the meeting was not large on account of the members being busy at work. It is to be regretted that the Master, Brother McDonald, and the Secretary, Brother Kelley, were absent. The former was kept away on account of work, and the latter on account of sickness. While in San Antonio, I had the pleasure of calling upon our esteemed brother, J. R. Norton, who is now a prominent attorney in that city, and who attended former conventions of the Order. Brother Norton has risen to his present position by his own efforts. He is an example for all young men to follow who care to advance in life.



ED. E. SHEASGREEN

Railway Poet; author of volume entitled, "Switch Lights." Member of Lodge 82, B. L. F.

My stop in Del Rio was all that could be expected for such a short stay. No. 546 is one of the best for its number of members in the Order, and may it always be so. Had a good meeting with the brothers at night and the following afternoon, a joint meeting with the brothers and sisters. I appreciate the honor conferred upon me by having another opportunity to talk to the members of both lodges. Will be glad when I can make a return visit to them and meet with them again. A call upon Mr. Sneddan, master mechanic, at Del Rio, is always appreciated by me, and he never fails to tell me what a good lot of boys he has. We are always glad to know of good feeling between Mr. Sneddan and our members and we appreciate it very much. Brother Worth, the popular delegate at our last convention from No. 546, saw that my wants were supplied while in his city, and his kindness was appreciated.

I next find myself in El Paso, Tex., the city that is known far and wide as the "gateway" into Old Mexico. In this city we have a good lodge. The lessons learned by our members while there should be beneficial to all. Brother Hankens, who was away in California for his health, was missed. The most active officers of No. 135 are Brother Belford, Master; Brother Geddeon, Secretary; Brother Hankamer, Collector, and Brother Gaul, Treasurer. I believe that No. 135 made no mistake when they placed these brothers in office in their earnest efforts to make this lodge a splendid one. My stay, though short, was pleasant and profitable, and I hope to return soon.

Away down in southern Arizona, the city of Douglass, though scarcely two years old, is everything that one could wish for, and best of all a climate that is a world-beater. Old Mexico is but a few rods away, and a stroll over the line with Brother McNeer of No. 475 and Brother Gray of No. 617, was one of the features of the visit while in Douglass. It was in this place where we planted the banner of Chiricahua Lodge 617, that is now flying in the breeze. On November 17th

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fifteen tried and true valiant sons of toil, now residents of Arizona, became members of this lodge, and as I banded them together in the bonds of unionism I thought to myself, "These are the kind of men that the President of the United States, Theodore Roosevelt, likes so well, and whom he thinks would make such good soldiers, should their country call for their services." All were young men and full of vigor, and will fight the battle for bread, firing the "battleships" of the present age that wipe out more men's lives than war. As a writer said the other day, "That in the Boer war 20,000 men laid down their lives for what they thought was right. In the same space of time 21,000 railroad men gave up their lives while faithfully discharging their duties on the rail." Says the writer, "Railroading like war, is hell."

That No. 617 starts off in good shape can not be denied, and I hope they will always do their part in keeping their lodge in good working order. This lodge represents enginemen on the El Paso & South Western Ry.; to make a trip over this line and visit Douglass and Bisbee, Ariz., will quickly tell you why a road is needed in that part of the country. Mines and smelters are plentiful and railroads are needed to get the products of the mine and smelter to an eastern market. The enginemen of the El Paso & South Western Ry. are to be congratulated in having such an officer as Mr. Struthers, superintendent of machinery, who at one time was on the Denver & Rio Grande Ry. with headquarters at Grand Junction, Colo. Mr. Struthers put in the best part of his life-time working for the Rio Grande, and while there he enjoyed the confidence and esteem of all who knew him. We can safely recommend him to all those who work for him, and all who do their work right will find in him a just official. I was not privileged to meet any of the other officials, but they were highly spoken of to me by our members. I was ably assisted in organizing No. 617 by Brothers E. Wilson of No. 295; John Arnold, of No. 589; John Kelsey, of No. 591; T. Lawandie, of No. 173, and H. R. McNeer, of No. 475.

Tucson, Ariz., the home of Cactus Lodge 94, was my next stopping place. The lodge got its name from the giant cacti that grow in that part of the country. Heavy business on the road prevented me from holding as many meetings as I would like, but there was no help for the small attendance, as the members could not get off duty. The meeting held with No. 94 was very good, as was the one held with the Ladies' Society. I appreciated very much the kindness shown me by the brothers and sisters at Tucson and will not soon forget them, and will try to return at an early date, at which time we hope to be able to hold more meetings in the interest of both Orders. Bro. R. W. Anderson, the popular Secretary of No. 94, is an enthusiastic worker for the Order and is liked by all who know him. Brother Merrimer, the Treasurer of No. 94, is quite a bandmaster. His band is made up from boys ranging in ages from eight to fifteen years, and is one of the best of its kind in the country. This brother deserves praise for having such an excellent juvenile band; it goes to show what time, study, and patience can do.

A visit to Arrow Head Lodge No. 314, San Bernardino, Cal., by a Grand Lodge officer is always appreciated by members of the lodge. No. 314 is one of the best lodges in the West, and they always keep up to date. The officers are wide awake and try to keep abreast with the times, and that has much to do with the prosperity of this or any other lodge.

In Los Angeles, Cal., is located Orange Grove Lodge No. 97, a lodge that is in splendid working order and ably presided over by Brother Doyle who makes an excellent master. I spent a most pleasant and profitable evening with this lodge and one that will long be remembered.

One of the most profitable meetings that I have held in a long time was in San Diego, Cal., with Lodge No. 386. We had with us on this occasion such worthy brothers as Kellog, Marrs, and the Dodge Brothers. A good meeting was held, and two candidates were initiated. I am quite sure the meeting will long be remembered. It is always a pleasure to go to San Diego and meet with our brothers at that place.

A meeting with the brothers of the Joint Protective Board of the Southern Pacific System, then in session in San Francisco, was one of the pleasant incidents of the trip. I visited in that city Lodges Nos. 91 and 143, two lodges that have made phenomenal growth in the Brotherhood in the last year.

The outlook was never more bright than at the present time for the future prosperity of the Brotherhood in the West. In fact where I have been, I hear nothing but praises for the Order, and let us hope and trust that the present splendid conditions will ever remain so.

CHAS. W. MAIER.

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Correspondence

LODGE 178 — (*"Judge," Salt Lake City, Utah.*) On November 10th, the lady relatives of the firemen were entertained by Lodge 178, the object in view being to interest the ladies in the organizing of a Ladies' Society of this lodge. Brother Kenyon, using all the eloquence at his command during the meeting to induce the ladies to sign their names requesting a charter, succeeded in securing the five names necessary, so that now Lodge 178 has advanced a step farther in the good work that has been going on here during the present year. The evening's entertainment was made all the more successful by the presence of Past Grand Master Frank P. Sargent, who was in town on his way to the coast, "looking for Chinamen," as he afterwards explained during the evening in his happy vein.

Brother Sargent's presence at the meeting was a surprise to the members, it not being known that he was in town. During the day Bro. Bobby Brown saw him and kept his little secret to himself until the evening, when he took Brothers Hannigan and McDonald into his confidence, and together they went in search of Brother Sargent, locating him at the Kuntsford Hotel, after which they invited him and his private secretary, Brother Donahue, to their social. To say that the members present were surprised when Brother Sargent entered the lodge room would be putting it very mildly.

After the entertainment ended, enough of the boys remained to make a B. of L. F. fireman out of Brother Beatly, who came up to ride the goat. We have ordered some new initiation paraphernalia, among which is a real live goat. Well, the rider will think it is, and the next candidate—and there are several of them—will get a ride indeed, or something else.

DEATH OF BRO. T. P. SAYERS—(*J. B. Kimbrough, Hope, Idaho.*) On Sunday morning, October 26, 1902, Bro. Thomas P. Sayers, of Lodge 17, firing out of Hope, Idaho, was killed in a head-on collision. Engineer Al. Busey was also badly injured, both of them being on a lead engine of a double-header extra west when they hit an engine extra east on a very bad reverse curve. None of the other men were hurt. The cause of the wreck has been laid to the dispatcher.

Brother Sayers came here from Omaha, Neb., where he fired on the U. P. R. R. He was a German by birth, aged twenty-nine years, and he was an industrious, sober, and very bright man. As a fireman, none had other than a good word for him, both among his fellow-workmen and officials. He was a member of the Brotherhood of Locomotive Firemen, Knights of Pythias, and Foresters. A letter was found on his person, from a sister in Tower City, N. Dak., who was notified.

We all mourn the loss of as true a brother as it is possible to find.

LODGE 615 — (*"Member," Alexandria, Va.*) We are proud to say that we have one of the best lodges in the South, being organized but a short time, and all of new material. Our road is a short one, and most every man who handles the scoop is a member of the B. of L. F. There are a few exceptions, but we have their applications, which will soon be attended to. We also have a nice set of officers, and the boys stick together like brothers. We extend an invitation to the Grand officers to visit us, and we would be pleased to have them come around at any time.

Brother Faulkner, of Lodge 7, visited the boys the other day and declares he couldn't have been treated better if he were president. We will be pleased to have more of the brothers of Lodge 7, and also of Lodge 497, visit us at any time.

As I work on this end of the road it makes it unhandy for me to get to meetings, but I was down to a special meeting Sunday, and we had a very good attendance. After attending to business, I was invited by several of the brothers to supper. I went home with Brother Hulcher, where I was introduced to his mother and brother, whom I was more than glad to meet, they being as pleasant as Brother Hulcher himself. Mrs. Hulcher had a supper prepared for us for which I must compliment her. After supper, Brother Hulcher and myself visited Brother and Mrs. Malory, who entertained us elegantly, after which I had to leave for home, being more than delighted with my trip.

LODGE 334—(*"Member," E. Syracuse, N. Y.*) Long Doubler Lodge 334, B. of L. F., and Sherman Lodge 143, B. of R.

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T., have decided to have a fraternal ball, to be given at the Alhambra, at Syracuse, Thursday evening, January 1, 1903. To make sure of success, especially to reach the goal of the lodges' ambitions to make this one of the most successful entertainments ever provided by the railroad men, they have secured a sextette of the most popular men in railroad circles as the committee in charge of the ball, who are as follows: Brothers Wm. McCann, chairman; F. J. O'Brien, first vice-chairman; F. A. Husk, second vice-chairman; C. A. Beattie, secretary and treasurer; Eugene Cross, chairman of committee on invitations; J. A. Rockwood, chairman of reception committee. To say that the ladies, who ever have their eyes on the boys of the DeWitt yards, are working might and main to make this ball a great success is no imaginary statement, but a fact well known to the dressmakers and the dry goods men. Six hundred invitations have been sent out, and all will be responded to.

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UNION MEETING OF LODGES 99 AND L. S. 58—(*A Brother, Rochester, N. Y.*) The ladies of L. S. 58 and the brothers of Lodge 99, held a union meeting at Odd Fellows Hall, December 4, 1902. Mrs. John Barry and Bro. James Cleary were in the chairs. Mesdames Craft and Ellis rendered several vocal selections which were thoroughly enjoyed by those in attendance. Mrs. Flint officiated as pianist in an efficient manner. It goes without saying, that L. S. 58 is well equipped with musical talent. Mrs. Hunter told some good stories, and Mrs. Googherty, Tom and Mrs. McMonnis, and Mac were "it" all the while. Brother and Mrs. Couch were silent, as usual, but we can not do without them or their willing hands. Brother Pruynn was conspicuous by his absence, however, we excuse him as he was confined to the house on account of illness. Brother Caudle had a large and expansive smile on his face all the evening. Bro. George Yerger—well, enough said. Bro. Tom Crouch, as usual, kept the people laughing with his funny stories and imitations, and Brother Lynch—well, John X. was right in it. I understand John has a tuneful ear, and I believe it. He held down one side of the piano, told some good stories, and most thoroughly enjoyed himself. Brother Wedrick was the whole thing—at one end of the room. Brother Holden gave us a few songs which were enjoyed. Brothers Couch and Yerger have joined the Salvation Army. Mrs. Pettis makes a fine leading lady. At a late hour we repaired to the dining room where a bountiful supper was served. I do not vouch for the truth of the statement, but I understand the supper was delayed on account of Brother Colts getting stalled on Main Street hill with the ice cream. And Brother Dentrif, well, he was there; you can bank on that. If it had not been for fear of the cream melting, supper would not have been served until after midnight, because Brother Flint was not hungry.

During the evening Brother Cleary spoke of the death of Brother Dye, who was killed in a collision on the B. R. & P. Ry. Brother Dye was a whole-souled brother, and was respected and honored by his associates. The Brotherhood has lost a thorough brother, and the company



AVERY C. MOORE

Recently elected member of Legislature of State of Idaho. Member of Lodge 133.

an efficient employe. His bereaved family have the heartfelt sympathy of the brothers of Lodge 99.

By the way, I would like to say a word to the fireman who does not join the Brotherhood. He is missing one of the chances of his life to provide for his family or relatives in case of death or accident. Recently a fireman on the B. R. & P. Ry. made application for membership in Lodge 99 but failed to go to the doctor, putting it off from time to time through carelessness or inability to get time to do so. Before the opportunity came to attend to the matter he was killed by being scalded to death in a head-end collision. Firemen, take warning of this. Do not put off until tomorrow what you can and should do today.

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APPROPRIATION FOR THE HOME—(*J. Frank Nelms, Lodge 111, Mattoon, Ill.*) The writer will say to the member of Lodge 111, whose letter appeared in the December issue of the MAGAZINE, that he, too, is in favor of the $25,000 appropriation for the Home for Aged and Disabled Railroad Men, and can safely say that there are few, if any, members of Lodge 111 but what voted yes, and are satisfied and fully convinced that the Home will be very indispensable to all members, both the aged and the able-bodied.

His remarks would have harmoniously blended with those of other members of Lodge 111 if he had left that "occasional meeting" out of his letter, for, had he been as close an attendant to lodge meetings as he should have been, he would know that Beacon Lodge has been having its meetings very regularly and are taking in from one to three candidates every meeting day. Several firemen were promoted a few months ago, and you would think from looking over the collectors' unpaid receipts that they had entirely forgotten they ever belonged to the B. of L. F.

Beacon Lodge would be very glad at any time to have an officer of the Grand Lodge visit us, and we cordially invite any of the officers to come and see us at any time convenient to them. While we may not be in the A1 class, we believe we will average fair.

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THE LOGANSPORT DIVISION OF THE PAN-HANDLE — (*"Ex-Pan-Handle Tallow Pot," Lodge 52, Logansport, Ind.*) Railroading on the Logansport Division of the Pan-Handle is not such a bugbear as it once was. Although we have some of the largest engines there are in the country, still we use good coal, have a fairly level track, and do a good deal of doubling, and have as courteous and considerate a set of officials as a man would care to work under. We have just received a ten per cent. increase in wages, so prospects are good here for the future.

A great many of our boys are being promoted to the right-hand side. We have a good per cent. of the available timber in the Brotherhood, and a good, strong athletic goat to take care of all candidates. We have a membership now of about one hundred and twenty-five, a good set of officers and energetic members to back them up. So look out for some great times in Good Will Lodge 52.

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DEATH OF BRO. R. W. LINKENHOKER—(*J. E. Urquhart, Lodge 182, Roanoke, Va.*) We are called upon to mourn the loss of Bro. R. W. Linkenhoker, who met death while at the post of duty on the Shenandoah Valley Division of the N. & W. R. R. Brother Linkenhoker was run over by a car and was so badly injured that his death resulted in about twenty-four hours afterward at the hospital in Roanoke. He was sober and industrious, and most attentive to business. He was an active member of the lodge for several years, and was always ready to help a brother in need. He leaves three or four brothers and a sister to mourn his loss. The funeral was in charge of the B. of R. T. and the B. of L. F., and all that was mortal of our dear brother was laid to rest with all the honors of our noble brotherhoods.

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DEATH OF BRO. ROBERT L. KLINEFELTER—(*E. R. Miller, Lodge 319, Philadelphia, Pa.*) Our respected brother, Robert L. Klinefelter of Lodge 319, was killed in a wreck on the B. & O. R. R., at Bay View, Md., November 17, 1902. By his loyalty, he had endeared himself to his fellow-brothers, and by his honesty and integrity he merited the respect and esteem of all with whom he came in contact. His death was a sad blow to our Brotherhood, as well as to his friends. He was always active in his work, and was every ready and willing to advance our cause. He was an upright man, wise in council, fearless in action, and a credit to our Brotherhood. The members of Mt. Moriah Lodge 319 tender their sincere sympathy to a bereaved and heart-broken mother and father, and we pray that God will give them strength and help them to bear their loss.

We were glad to see an article in the December issue of the MAGAZINE from our brother, W. D. Lewis, who, since this lodge has been organized, has been an active member, and is now in the employment of the United States Government, under Past Grand Master F. P. Sargent. We wish him success in the performance of his work for his country, which he has always been loyal to. He is missed very much by the members of 319 since he left here.

♣ ♣ ♣

LODGE 143—(*A Brother, W. Oakland, Cal.*) Early on the morning of Thanksgiving day a terrible hend-end collision occurred at Benicia that cost two of our beloved brothers their lives. Train No. 202, a through freight, that leaves West Oakland at 12:40 a. m., had just crossed

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over to Benicia, where they had a regular meet with westbound train No. 201, and held the main line waiting for its arrival. No. 201 should head in and take the siding, but instead they came in at full speed, colliding with 202, demolishing both engines and piling box cars about ten high. Bro. Henry Foster was at the throttle, and Bro. Henry W. Davis at the scoop, and both were instantly killed. Brother Davis was crushed under and partly through the firebox door, being burned almost beyond recognition. Brother Foster was badly crushed, and was found about three car lengths back from the engine. It is supposed that he was dead before coming into the yard, as he had complained of severe pains about the heart before leaving Sacramento, and was subject to heart trouble.

In the death of Brother Foster this lodge has lost one of its oldest members. Brother Davis joined the Order last July, and showed a marked interest in the good work, and we deeply regret his untimely death. The death of Brother Foster was particularly pathetic. It had been his custom for several years to go with his wife and child and spend Thanksgiving with his parents in Los Angeles. This year Mrs. Foster preceded him a few days, he hoping to lay off and leave here on the evening of November 26th, to arrive at Los Angeles for Thanksgiving. His folks were waiting, and were watching every street car, expecting that he would arrive at any moment. When they decided to wait dinner no longer and were seated at the table, a messenger came with the sad news of Henry's death. The funeral took place Sunday, November 30th, from his home in Oakland, under the auspices of the B. of L. F., and was attended by a large number of brothers and friends.

The funeral of Brother Davis took place from his residence, thence to St. Patrick's Church, and was one of the largest ever seen in West Oakland.

Lodge 143 is coming to the front, and we can look about our lodge room with pride, especially on Friday night, when all seats are occupied, and every member taking a keen interest in the work. Non-union men are getting scarce around here, as we work up all the timber as soon as it becomes available. Our goat is well fed, and always ready for action. We give him a run or two at almost every meeting.

Business is keeping up well and the boys are busy. Bro. Fred A. Sugden was recently promoted to the position of traveling fireman on the Western division. Let us congratulate you, Brother Sugden. May you find the road smoother and the engines all oil burners.

We are getting a new style of tank on some of our big oil-burning engines that will open the eyes of any of our eastern brothers who may happen out this way. They are built somewhat like the ordinary oil car, the bottom being flat, with guard rails on either side. There are two compartments, the rear one holding about 7,300 gallons of water, the one at the forward end holding 3,300 gallons of oil, or about enough to take an ordinary train of eight or nine passenger cars about five hundred miles.

Bro. C. W. Maier paid us a visit November 28th, and gave us an interesting talk on Brotherhood matters. We are always glad to see our Third Vice Grand Master and listen to his words of advice. Come again and often, Brother Maier.

* * *

FILLS THE MAYOR'S CHAIR—(*I. E. W. Bailey, Lodge 521, Moose Jaw, N. W. T.*) Bro. Charles Unwin, of Buffalo Range Lodge 521, again fills the Mayor's chair of the town of Moose Jaw. In this, his second term, he has been elected by acclamation. His services during the past term have been so highly appreciated, and his sterling worth and ability so generally recognized in our community that no one would contest the seat. This speaks well, both for the good judgment of the people of Moose Jaw and for organized labor.

* * *

LODGE 214—(*Member, Baltimore, Md.*) We are sorry to announce that on December 9, 1902, the angel of death visited the home of Bro. Milton Miller and wife, and in the short space of only a few hours called two of their beloved children to their resting place above. We, the brothers of 214, extend to Brother Miller and wife our deepest and heartfelt sympathies in their hour of bereavement, and trust that they will bear up well in their time of trouble.

It affords me great pleasure to announce that some of our worthy brothers have laid down the scoop and stepped over to the right-hand side of the locomotive, and I trust they will always remember the golden rule, "Do unto others as you would that they should do unto you." I wish them God speed, and hope that good luck may follow them always.

Our last meeting was one of the most interesting and successful that we have

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had for some time. There was a fair attendance, and the brothers were all in good spirits and full of business. There is always room for them, and a good place to spend a few hours.

I wish all the brothers a Merry Christmas and a Happy New Year.

♣ ♣ ♣

DEATH OF BRO. C. C. BEEDLE—(*A Brother, Lodge 475, Helper, Utah.*) It is with a sad heart that I announce the death of a true and very much respected brother, that of Bro. C. C. Beedle, who was killed in a wreck which occurred December 2, 1902, in what is known as the Ruby Canon by the falling of a rock on



A SWITCH ENGINE WRECK

Iowa Central Railway

the track ahead of the train. Both Brother Beedle and Brother Cummings, who is still a member of Lodge 77, B. of L. F., were unaware of its presence until the wreck occurred. The engine left the track and rolled about thirty feet away. The tank stayed on top of the embankment, and it was in such a position that the water from it ran directly down on Brother Beedle, who was buried under the engine. Words of praise can never repay Brakeman Corsev who worked like a hero to keep the water from drowning Brother Beedle, while all others were afraid to venture near him for fear of the engine tipping over on them.

In our loss of Brother Beedle Lodge 475 loses one of its best members, as he was a hail fellow well met, and always had a good word for his fellow-man. He was an earnest worker for the Brotherhood. He leaves a wife, mother, father, brothers and sisters to mourn his loss. After the wreck occurred he was taken to Grand Junction, Colo., our eastern terminal, but died before reaching there. Upon arriving there his body was taken charge of by Brotherhood firemen who were at that place, and prepared for shipment to the ones who loved him dearly, at his old home in Glen Elder, Kans.

Brother Cummings, who had to have his leg taken off, is doing nicely in the hospital at Grand Junction, and he still thinks there was not an engine on our road as good as the 73, the one with which they had their misfortune.

I must not forget to give K. of P. Lodge No. 15 great credit for the prompt action they took in looking after Brother Beedle, he being a member of that society at Helper. Brother Beedle was one of the oldest firemen on our division, which is the desert of the D. & R. G. System. He was very near to promotion, which he was working for, but it seems as though it was his lot to be taken from amongst us. This was the third serious wreck in which he had been, and the Lord finally called him home. We all extend our heartfelt sympathy to the bereaved ones left behind, and hope that none who are left will ever be caught as he was. The floral offerings that were given by the B. of L. F. and the K. P. were very fine.

♣ ♣ ♣

LOOK OUT FOR HIM!—(*From Secretary Lodge 70, Longview, Tex.*) Please insert this or such notice as you think proper. For the protection of our members it is absolutely necessary that such men be shown up in their true light. Enclose papers:

LONGVIEW, TEX., Nov. 8, 1902.

To All Brothers—I desire to warn you against one J. C. Howland, who is traveling over the country. He will not keep a job nor pay his debts. Formerly belonged to Lodge 344 and Lodge 540. Write for particulars.

J. T. WARD,
Secy.-Treas. Lodge 70.

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Official

Addresses Wanted.

Requests have reached this office to publish notices inquiring for the present addresses, or any information concerning the following persons. Information should be sent to the person specified in notice:

A. I. McClendon.—Last heard from was over six months ago, and at that time he was hostling at Waco, Tex. His mother is very anxious to hear from him, and has fears that he is dead. Any information concerning his present whereabouts will be gladly received by her. Address Mrs. J. A. Palmer, Sulphur Springs, Tex.

F. D. Stalford.—Last known address was at Oklahoma City, Okla. T. Anyone knowing his present whereabouts will confer a favor by addressing A. Middlesworth, Secretary Lodge 102, B. of L. F., 815 W. Locust St., Des Moines, Iowa.

Martin M. Rilley.—Has light hair, deep blue eyes, is of slight build, and about 5 feet 11 inches in height. Was in the 31st company of artillery in Manila; landed in San Francisco last January; was discharged and placed in hospital where he remained until the end of January. He then boarded at 912-914 Michigan St., San Francisco, Cal., where he received and sent mail, until April 15th, when all trace of him was lost. He stated in a letter dated March 28th that he had been promised a job on S. P. R. R., also that he had met some of the Brotherhood boys from Oakland, Cal., and would probably try and secure a job there. His relatives are very anxious to know something definite about him, as he was always very prompt in writing home. Anyone knowing his present whereabouts, kindly address A. B. Miller, 8 Harrison St., Cumberland, Md.

V. B. Loving.—Was employed as a brakeman on the Missouri Pacific Railway out of Osawatomie, Kans., about the years 1894 and 1895. Any one knowing his present address please send same to J. E. Lydick, 500 E. Fifth Street, Sedalia, Mo.

Acknowledgments.

The following persons desire to acknowledge receipt of payment of claims, and to express their gratitude to the Brotherhood of Locomotive Firemen as an organization, and to the individual members for kindnesses and courtesies extended:

Mrs. Mae Lee, Brookfield, Mo.
Mrs. R. P. Hobb, Caldwell, Kan.
W. C. Manfull, Farmington, Utah.
Kate V. Wetmore, Westfield, Mass.
Mrs. C. S. Owens, Conover, Ohio.
Fred M. Marshall, Buffalo, N. Y.
James Atkinson, Silvia Springs, Ark.
Ada B. Benedict, Butler, Pa.
Benjamin D. Eastman, North Conway, N. H.
Emma Jackson, Abilene, Kans.
Ray Maudlin, Logansport, Ind.
Mrs. Josephine Treesh, Los. Angeles, Cal.
Mrs. Laura Wolcott, Martinez, Cal.
Mr. and Mrs. George N. Kingsley.
John M. Watson, Belvidere, Ill.

Lost Traveling Cards, Etc.

This office has been notified of the loss of the following traveling cards, receipts, etc., and the request is made that all members be on the lookout for them. Should they be discovered in possession of persons not entitled to them, they should be retained and forwarded to owner or to the secretary of the lodge which issued same:

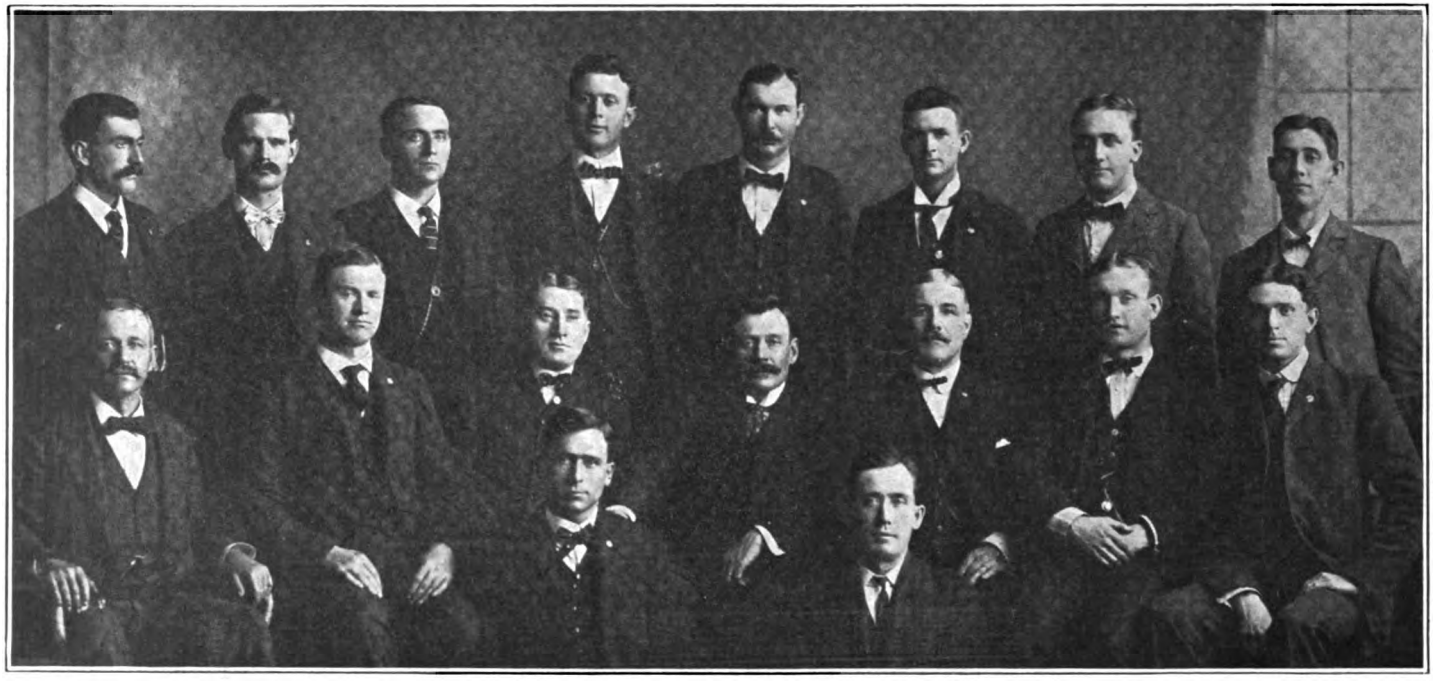
Receipts and Traveling Card of J. E. Holtzman, of Lodge 175.—Pocketbook containing no money, but a number of receipts from both the B. of L. F. and K. P., was lost or taken while I was asleep on train No. 2 of the Illinois Central Railroad, between Fort Dodge and Freeport. Besides the receipts, there was an old traveling card, orders for secret work on B. of L. F. and K. P., receipts for present quarter's dues and other papers. Pocketbook was a long bill book, nearly worn out. If found, please return to J. E. Holtzman, 245 E. Main Street, Newark, Ohio.

Balls and Entertainments.

Courteous invitations have been received at this office to attend the following balls and entertainments. The Grand Lodge force returns thank and wish all an enjoyable and successful time:

Lodge 32, L. S.—Eighth anniversary ball, at Music Hall, Kansas City, Mo., Thursday evening, December 4, 1902.

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JOINT PROTECTIVE BOARD, B. L. F., C., R. I. & P. RY.

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Railroad Brotherhoods of Detroit.—Charity ball for the benefit of the Aged and Disabled Railroad Men's Home, at Light Guard Armory, Detroit, Mich., Tuesday evening, January 6, 1903.

Lodge 296.—Eighth annual ball, at Maryland Hall, West Superior, Wis., Wednesday evening, December 1*i*, 1902.

Lodge 197.—Fourteenth annual ball, at Pulford Opera House, Savanna, Ill., Monday evening, November 24, 1902.

Lodge 133.—First annual ball, at Elks' Temple, Spokane, Wash., Thanksgiving nigh., November 27, 1902.

The Home Account.

The following donations were received at the Home for Aged and Disabled Railway Employes for the month of November, 1902:

B. of L. F. Lodge 271.....	$6 00
O. R. C. Divisions.....	22 00
B. of R. T. Lodges.....	33 00
B. of L. E. Divisions.....	41 00
L. A. to O. R. C. Divisions.....	16 00
G. I. A. to B. of L. E. Divisions.	$12 50
J. E. Stevens, per M. N. Goss, O. R. C., 40.....	8 00
Sold cowhide	8 30
Grand total$141 80	

Miscellaneous.—G. I. A. 224, barrel canned fruit, etc.; G. I. A. 59, box canned fruit etc.; L. A. to O. R. C. 153, barrel canned fruit, etc.; L. A. to B. of R. T. 32, box canned fruit, etc.; G. I. A. to B. of L. E. 275, 2 boxes canned fruit, etc.; L. A. to O. R. C. 103, 2 boxes canned fruit, etc.; G. L. A. to B. of L. E. 221, box canned fruit, etc.; barrel of canned fruit, "no clue;" Cashier, Highland Park Bank, 3 fat turkeys for Thanksgiving. Have since learned that $5 reported in July as "no clue" was from L. S. to B. of L. F. 74.

Notice.—The annual meeting will be held in the Home parlors the third Tuesday in April next, instead of the third Tuesday in January as heretofore.

Respectfully submitted,

MRS. T. B. WATSON,

Sec. and Treas. R. R. M. H.

*Words o' Cheer.**

Lo! Calvin, Knox and Luther cry
I hae the truth and I and I.
Puir sinners, if ye gang agley
The Deil will hae ye
And then the Lord will stand abeigh
And will nae save ye.

But hoolie, hoolie; na sa fast,
When Gabriel shall blaw his blast
And Heaven and earth awa hae past,
These lang syne saints
Shall find baith Deil and Hell at last
Mere pious feints.

The upright, honest-hearted man,
Who strives to do the best he can,
Need never fear the church's ban
Or Hell's damnation,
For God will need nae special plan
For his salvation.

The ane wha feels our deepest needs,
Reeks little how man counts his beads,
For righteousness is not in creeds
Or solemn faces,
But rather lies in kindly deeds
And Christian graces.

Then never fear, wi' purpose leal,
A head to think, a heart to feel
For human woe, or human weal,
Nae preaching loon
Your sacred birthright e'er can steal
To Heaven aboon.

Tak tent o' truth and head thee well,
The man who sins mak's his own hell,
There nae worse deil than himsel,
But God is strongest,
And when puir human hearts rebel
He haulds out longest.

*The above verses were sent from Scotland to Mr. J. R. Forgan, president of the First National Bank of Chicago, by one of his Scotch friends, and it is vouched for as being authentic—an unpublished poem of Robert Burns.—Graphite.

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Locomotive Firemen's Magazine

Published by the Brotherhood of Locomotive Firemen on the first day of each month, at Indianapolis, Ind.
All correspondence relating to the MAGAZINE should be addressed to the Editor and Manager.
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Beneficiary Statement

OFFICE OF GRAND SECRETARY AND TREASURER,
PEORIA, ILL., December 1, 1902.

TO SUBORDINATE LODGES:

The following is a statement of receipts in the Beneficiary Department for the month of November, 1902:

RECEIPTS.

Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.
1	390 00	63	128 00	125	61 25	187	88 00	249	163 00	311		373	99 50	435	74 00	497	119 25	559			
2	36 00	64	199 50	126	91 75	188	246 00	250	164 75	312	108 25	374	142 00	436	185 25	498	73 75	560	44 50		
3	628 25	65	171 50	127		189	165 75	251	266 75	313		375		437	27 75	499	39 50	561	49 25		
4		66	125 75	128	70 00	190	13 75	252	266 00	314	158 50	376	76 25	438	78 50	500	133 00	562	96 75		
5	309 75	67	150 25	129	212 25	191	123 75	253	165 50	315	102 75	377	166 50	439		501	111 25	563	157 00		
6		68	99 00	130	299 25	192	165 25	254	105 25	316	213 50	378	534 25	440	158 75	502	168 50	564	64 00		
7	119 00	69	69 00	131	58 00	193	75 50	255	79 00	317	58 75	379	190 50	441		503	80 00	565	54 00		
8	388 50	70	139 25	132	126 25	194	193 00	256	80 50	318	322 75	380	26 00	442	68 00	504	40 25	566	96 50		
9	231 75	71	210 50	133	158 25	195	83 50	257	100 75	319	153 75	381	136 25	443	91 25	505	62 25	567	62 25		
10	614 50	72	363 50	134	104 00	196	47 50	258	28 00	320	75 75	382	93 00	444	155 00	506	82 75	568	106 75		
11	189 25	73	240 75	135	155 00	197	108 25	259		321	57 75	383	127 50	445	72 75	507	37 25	569	58 25		
12	304 50	74	140 50	136		198	168 25	260		322	89 00	384	104 00	446		508	193 00	570	46 75		
13	385 75	75	431 25	137	73 50	199	111 00	261		323	88 00	385	77 75	447	50 00	509	51 00	571			
14	259 00	76	27 50	138	272 75	200	104 25	262	176 75	324	63 75	386	26 00	448	448 25	510	172 00	572	43 00		
15	110 00	77	322 00	139	226 75	201	222 00	263	114 75	325	126 50	387	48 50	449	362 00	511	141 50	573	51 25		
16	291 25	78	197 50	140	334 00	202	139 50	264		326	211 75	388	200 75	450	81 50	512	88 00	574	60 75		
17	205 25	79	44 00	141	366 25	203	239 00	265		327		389	105 50	451	93 50	513	109 75	575	57 75		
18	192 00	80	200 00	142	211 75	204	134 00	266	153 00	328	71 00	390	154 75	452	93 50	514	217 00	576	59 50		
19	224 25	81	152 00	143	211 25	205	96 75	267	154 00	329		391	151 00	453		515	96 00	577			
20	36 00	82	219 50	144		206	55 00	268	36 50	330	182 50	392	131 25	454	134 00	516		578	94 25		
21	165 75	83	207 75	145	234 25	207	203 50	269	163 25	331	51 25	393	139 25	455	98 50	517		579			
22	68 75	84		146	307 75	208	97 25	270	114 50	332	108 00	394	18 00	456		518	31 25	580	26 00		
23	69 50	85	165 50	147	149 00	209	154 00	271	96 00	333	239 00	395	85 00	457	141 50	519	123 50	581	24 50		
24	168 00	86	191 50	148	119 75	210	63 75	272	48 00	334	199 25	396	122 75	458	29 00	520	43 75	582	124 00		
25	588 50	87	88 75	149	781 25	211	179 50	273	153 50	335	54 50	397	50 00	459	64 00	521	62 25	583			
26	201 75	88	119 75	150		212	138 50	274		336	83 25	398	63 75	460	65 75	522	133 50	584	37 25		
27	205 00	89	68 00	151	88 50	213	183 25	275	263 50	337	186 25	399	47 00	461	102 75	523	84 75	585	89 25		
28	159 00	90		152	144 25	214	245 50	276		338	154 00	400		462	118 00	524	15 00	586	19 50		
29	95 25	91		153		215	260 00	277	99 00	339	46 25	401	232 75	463	137 50	525		587	117 75		
30	133 25	92	98 25	154	84 50	216	82 00	278	23 50	340	118 50	402	186 00	464	53 50	526		588	32 00		
31	78 50	93	105 75	155	154 25	217	127 75	279	61 00	341	202 75	403	53 50	465	219 25	527	91 75	589	62 75		
32	175 50	94		156	198 25	218	210 75	280	90 25	342	159 25	404	76 75	466		528	99 25	590	232 25		
33	113 00	95	36 50	157	61 50	219	195 00	281		343		405	147 00	467	92 75	529	138 75	591			
34	251 25	96	133 25	158	75 00	220	441 00	282	26 75	344		406	40 25	468		530		592	43 00		
35	157 00	97		159	124 50	221	161 25	283	96 75	345	147 75	407	106 00	469	56 50	531	66 50	593	31 00		
36	139 00	98	199 50	160	132 75	222	161 75	284	403 50	346	17 00	408		470	137 00	532	50 50	594	82 25		
37	154 50	99	514 50	161	27 00	223		285	278 50	347	82 75	409	120 50	471	37 00	533	64 75	595			
38	96 50	100	43 50	162	298 00	224	47 50	286		348	102 25	410	200 00	472	172 00	534	154 50	596	105 25		
39	115 25	101	254 25	163	134 50	225	43 50	287	494 75	349	293 50	411		473	64 50	535	65 50	597	54 50		
40	270 75	102	103 50	164	87 50	226	198 25	288	111 75	350	73 75	412	129 25	474	112 50	536	48 25	598	55 00		
41	51 75	103		165	58 00	227		289	109 75	351	29 50	413	38 75	475	114 25	537		599	39 50		
42	32 00	104	121 25	166	242 25	228	336 50	290	100 00	352	103 00	414	76 25	476	50 00	538		600	56 75		
43		105	55 50	167	105 00	229	248 25	291	114 75	353	151 50	415	104 00	477	77 00	539	80 75	601	74 00		
44	170 00	106	66 00	168	94 00	230	546 00	292	45 50	354	177 25	416		478	175 25	540	135 50	602			
45	355 25	107	384 50	169	345 50	231	352 25	293	99 50	355		417	86 75	479	111 25	541	74 50	603	37 00		
46	54 25	108		170	91 50	232	159 50	294	99 00	356	134 00	418	386 00	480	40 00	542	112 00	604	28 75		
47	269 25	109	196 00	171	72 00	233	140 25	295		357	57 75	419	94 75	481	109 00	543	216 00	605	60 00		
48	274 50	110	150 75	172		234	83 50	296	166 75	358	59 50	420	104 25	482		544	130 75	606	38 50		
49	69 00	111		173	339 00	235		297	144 75	359	45 50	421	58 75	483	68 00	545	72 25	607	50 00		
50	40 00	112	48 75	174	813 00	236	351 75	298	126 50	360	125 00	422	66 75	484	128 00	546	69 50	608	41 25		
51	132 25	113	190 50	175		237	408 00	299	114 50	361	78 00	423	52 00	485	710 25	547	51 50	609	29 50		
52	228 25	114	41 00	176	153 00	238	183 75	300		362	46 00	424	92 25	486	93 50	548	74 25	610	31 75		
53	96 75	115	38 50	177	107 00	239		301	91 00	363	285 50	425	83 00	487	19 00	549	69 50	611	44 75		
54		116	77 00	178	410 50	240	235 50	302	230 00	364		426	170 75	488	67 00	550	40 75	612			
55	46 00	117	98 75	179		241	217 50	303	91 50	365	62 00	427	67 25	489	114 75	551	110 25	613	39 25		
56	108 50	118	52 00	180	12 00	242	224 00	304	175 50	366	58 75	428	63 50	490	139 00	552	88 50	614	140 00		
57		119	89 00	181	33 50	243	120 50	305	69 25	367	80 00	429	124 50	491	37 50	553	52 00	615			
58	124 00	120	159 25	182		244	100 75	306	225 75	368	106 50	430		492	145 50	554	52 25	616	13 50		
59	323 75	121		183	177 25	245	128 25	307	127 50	369	100 75	431		493	90 00	555	34 00	617			
60	229 50	122	57 75	184	82 00	246	241 00	308	60 00	370	26 50	432	219 50	494	102 00	556		618			
61	107 00	123	168 50	185		247	255 25	309	301 75	371		433	57 75	495	56 50	557	293 25	...			
62	84 75	124	157 75	186		248	172 75	310	169 00	372	123 50	434	391 50	496		558	93 50	...			

Received during month of November..... $73,651.75

Disbursed during month of November, account Beneficiary Claims..... { 45 $1,500 $67,500 / 1 1,000 1,000 / 7 500 3,500 } $72,000.00

Respectfully submitted,

G. S. and T.

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Beneficiary Assessment Notice No. 114.

To the Treasurers of Subordinate Lodges: PEORIA, ILL., January 1, 1903.

Dear Sirs and Brothers—You are hereby notified of the following deaths and disabilities:

Claim No.	NAMES.	Lodge No.	Death or Disability.	Date.	Cause.	Am't.	When Paid.
2196	A. C. Moffett	146	Death	Feb. 1, 1903	Typhoid fever	$1,500	Oct. 18, 1903
2197	James Ferguson	352	"	June 15, "	Railroad accident	1,500	" 18, "
2198	Clinton W. Bassett	64	"	" 21, "	Derailing of engine	500	" 18, "
2199	Geo. L. Arnett	358	"	" 23, "	Carcinoma of stomach	1,000	" 18, "
2200	Richard W. Killian	253	"	" 28, "	Railroad accident	1,500	" 18, "
2201	John O'Leary	446	"	July 7, "	Fracture of skull	1,500	" 18, "
2202	Stanley G. Marsh	505	"	" 9, "	Railroad accident	1,500	" 18, "
2203	Wm. J. Myers	59	"	" 19, "	Fell from train	1,500	" 18, "
2204	C. W. Tippit	45	Disability	" 20, "	Amputation of left hand	1,500	" 18, "
2205	Harry M. Tracy	143	"	" 28, "	Locomotor ataxia	1,500	" 18, "
2206	William Dwyer	441	"	" 24, "	Railroad collision	1,500	" 18, "
2207	Samuel H. McFarland	75	Death	" 27, "	Fell from engine	1,500	" 18, "
2208	Charles S. Lewis	192	"	" 27, "	Heart disease	500	" 18, "
2209	Peter H. Clarke	187	"	Aug. 3, "	Run over by train	1,500	" 18, "
2210	Michael J. Tully	223	"	" 3, "	Railroad collision	1,500	" 18, "
2211	Robert W. Reese	225	"	" 3, "	Railroad collision	1,500	" 18, "
2212	Edward E. Johnson	541	"	" 3, "	Run over by engine	1,000	" 18, "
2213	Lawrence Gearing	264	"	" 4, "	Railroad collision	1,500	" 18, "
2214	Ben H Brown	201	"	" 5, "	Bright's disease	1,500	" 18, "
2215	Almon N. Dellabaugh	230	"	" 5, "	Railroad accident	1,500	" 18, "
2216	Charles J. Chambon	541	"	" 11, "	Consumption	1,500	" 18, "
2217	C. I. Coxey	257	"	" 13, "	Cerebral meningitis	1,500	" 20, "
2218	Joseph Wilson	5	"	" 16, "	Paralysis	1,500	" 20, "
2219	W. C. Manfull	98	Disability	" 16, "	Paralysis	1,500	" 20, "
2220	C. A. Adsit	207	"	" 25, "	Locomotor ataxia	1,500	" 27, "
2221	James W. Charlton	337	Death	" 17, "	Struck by water crane	1,500	" 27, "
2222	H. A. Hutchins	443	"	" 25, "	Railroad collision	1,000	" 27, "
2223	W. R. Cornett	372	"	" 29, "	Dysentery	1,500	" 27, "
2224	J. W. Messick	83	Disability	" 30, "	Consumption	1,500	" 27, "
2225	John Shea	92	Death	Sept. 1, "	Consumption	1,500	" 27, "
2226	John J. King	156	"	" 2, "	Typhoid fever	1,500	" 27, "
2227	Lee Hensley	14	"	" 4, "	Typhoid fever	1,500	" 27, "
2228	Martin E. Downs	220	"	" 4, "	Consumption	1,500	" 27, "
2229	Edward J. Gorham	206	"	" 6, "	Typhoid fever	1,500	" 27, "
2230	Herbert S. DeLano	218	"	" 16, "	Derailing of engine	1,500	" 27, "
2231	James W. Herson	40	"		Litigation in court	1,000	" 20, "
2232	Henry G. Murray	391	"	July 1, "	Struck by bridge	1,000	" 27, "
2233	Henry Casey	483	"	Aug. 15, "	Crushed between cars	1,000	" 27, "
2234	Michael McNulty	284	"	" 22, "	Pneumonia	1,500	" 27, "
2235	F. J. Kinley	447	"	" 22, "	Fell from car	1,500	" 27, "
2236	Geo. B. Poland	169	"	" 24, "	Cholæmia	1,500	" 27, "
2237	Archie H. Wetmore	284	"	" 27, "	Derailing of engine	1,500	" 27, "
2238	F. V. Mixer	396	"	" 31, "	Falling from train	1,500	" 27, "
2239	Chas. D. Manhardt	33	"	Sept. 1, "	Railroad collision	1,500	" 27, "
2240	George Lutz	3	"	" 14, "	Boiler explosion	1,500	" 30, "
2241	Ernest F. Brockman	388	"	" 15, "	Appendicitis	1,500	" 30, "
2242	Chas. H. Studer	209	"	" 18, "	Railroad accident	1,500	" 30, "
2243	O. E. Walker	57	"	" 19, "	Boiler explosion	1,500	" 30, "
2244	Richard P. Hebb	515	"	" 21, "	Typhoid fever	1,500	" 30, "
2245	Edward Thon	109	"	Oct. 2, "	Derailing of engine	1,000	" 30, "
2246	A. R Bell	194	"	May 24, "	Railroad collision	500	Nov. 8, "
2247	Patrick Conroy	213	Disability	July 16, "	Amputation of right arm	1,500	" 8, "
2248	R. A. Mesenor	194	Death	Aug. 3, "	Typhoid fever	1,500	" 8, "
2249	I. R. Edwards	331	"	" 13, "	Run over by engine	1,500	" 8, "
2250	Frank W Wolcott	143	"	" 19, "	Derailing of engine	1,000	" 8, "
2251	John M. Watson	26	Disability	" 23, "	Paralysis	1,500	" 8, "
2252	James Atkinson	439	"	" 26, "	Locomotor ataxia	1,500	" 8, "
2253	Wm. H. Lee	535	Death	" 28, "	Railroad collision	1,500	" 13, "
2254	Wm. L. Stockton	571	"	" 29, "	Uremia	1,500	" 13, "
2255	C. S. Owens	401	"	Sept. 5, "	Derailing of engine	1,500	" 13, "
2256	Miles A. Johnston	441	"	" 9, "	Railroad collision	1,500	" 13, "
2257	Edw. A. Beechwood	192	Disability	" 15, "	Amputation both legs	1,500	" 13, "
2258	Chas. G. Klick	9	Death	" 19, "	Heart disease	1,500	" 24, "
2259	A. W. Eggleston	363	"	" 19, "	Cardiac paralysis	1,500	" 24, "
2260	George Andres	273	"	" 23, "	Explosion of engine	1,500	" 24, "
2261	Chas. H. Caskey	558	"	" 25, "	Railroad collision	1,500	" 24, "
2262	Arthur P. Provorse	59	"	Oct. 7, "	Typhoid fever	1,500	" 24, "
2263	Elzie E. Chambers	123	"	Aug. 18, "	Drowned	500	" 19, "
2264	E. F. Evans	198	"	Sept. 9, "	Railroad accident	500	" 24, "
2265	Peter P. Reid	286	"	" 10, "	Derailing of engine	500	" 24, "
2266	Wm. H. Carman	72	"	Oct. 6, "	Railroad accident	1,500	" 24, "
2267	R. D. Van Tassell	312	"	June 3, "	Derailing of engine	1,500	" 19, "
2268	Wm. M. Benedict	99	"	Sept. 19, "	Railroad collision	1,500	" 24, "
2269	Thos. E. Dungan	557	"	" 19, "	Railroad collision	1,500	" 26, "
2270	G. H. Hudnut	73	"	Oct. 6, "	Apoplexy	1,500	" 26, "
2271	Chas. S. Culpepper	522	"	" 7, "	Derailing of engine	500	" 26, "
2272	James Watson	75	"	July 31, "	Typhoid fever	500	" 19, "
2273	U. S. Farrar	110	Disability	Oct. 31, "	Consumption	1,500	" 13, "
2274	Henry Halpin	142	"	Sept. 1, "	Bright's disease	1,500	" 19, "
2275	W. H. Zoder	460	Death	May 24, "	Railroad collision	1,500	" 19, "
2276	Egbert R. Snider	261	"	Sept. 6, "	Derailing of engine	1,500	" 26, "
2277	H. F. Gober	289	Disability	" 15, "	Consumption	1,500	" 26, "
2278	Harry B. Swan	139	Death	" 21, "	Explosion of boiler	1,500	" 26, "
2279	I. G. Bond	88	"	" 26, "	Peritonitis	1,500	" 26, "
2280	Robert Treesh	139	"	Oct. 6, "	Nephritis	1,500	" 26, "
2281	Benj. D. Eastman	485	Disability	June 20, "	Amputation of left leg	1,500	" 19, "
2282	Ray Maudlin	52	"	Sept. 3, "	Paralysis	1,500	" 26, "
2283	A. C. V. Quintard	481	Death	" 3, "	Convulsions	1,500	" 26, "
2284	John T. Rogers	328	"	" 13, "	Railroad collision	1,500	" 26, "
2285	W. L. Forbes	201	"	" 24, "	Railroad collision	1,500	" 26, "
2286	Roy E. Daly	197	Disability	Oct. 6, "	Amputation right arm	1,500	" 26, "
2287	Frank L. De Turk	141	Death	" 13, "	Falling from engine	1,500	" 29, "

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Beneficiary Assessment Notice No. 114—Continued.

Claim No.	NAMES.	Lodge No.	Death or Disability.	Date.	Cause.	Am't.	When Paid.
2288	Lindol S. Lytle	185	Death	Oct. 17, 1902	Railroad accident	$1,500	Nov. 29, 1902
2289	Edward McNeale	587	"	" 18, "	Typhoid fever	1,500	" 29, "
2290	Chas. B. Jackson	94	"	June 9, "	Yellow fever	1,500	" 19, "
2291	J. L. Shadoan	135	"	Aug. 17, "	Railroad accident	1,500	" 19, "
2292	Herman Krause	1	"	" 19, "	Congestion of bowels	1,500	" 19, "
2293	T. C. Burmaster	465	"	Sept. 5, "	Railroad accident	1,500	" 29, "
2294	S. E. Rose	438	"	" 13, "	Railroad collision	500	" 29, "
2295	Louis Kohlheim	460	Disability.	" 18, "	Amputation of left leg	1,500	" 29, "

Assessments for death and disability claims are hereby levied as follows: For each member whose name appears on the rolls of membership January 1, 1903, (also for all members having taken a withdrawal or transfer card after January 1st, and for all members who died or were totally disabled since that date), carrying a Beneficiary Certificate of THREE THOUSAND ($3,000.00) DOLLARS you are required to forward the sum of FOUR DOLLARS AND TWENTY-FIVE CENTS ($4.25); for those carrying a Certificate of TWO THOUSAND ($2,000.00) DOLLARS you are required to forward the sum of TWO DOLLARS AND SEVENTY FIVE CENTS ($2.75); for those carrying a Certificate of FIFTEEN HUNDRED ($1,500.00) DOLLARS, you are required to forward the sum of TWO ($2.00) DOLLARS. For those carrying a Certificate of ONE THOUSAND ($1,000.00) DOLLARS you are required to forward the sum of ONE DOLLAR AND FIFTY ($1.50) CENTS, and for each member carrying a Certificate of FIVE HUNDRED ($500.00) DOLLARS you are required to forward the sum of SEVENTY-FIVE ($0.75) CENTS. Said remittances to reach the Grand Lodge not later than January 20, 1903, as provided in Section 60 of the Constitution. Respectfully submitted,

F. P. Arnold
G. S. and T.

SPECIAL NOTICE.—All remittances must be made by BANK DRAFT, MONEY ORDER, OR EXPRESS ORDER. Members initiated after October 1st, are not liable for this assessment. Treasurers are required to forward $2.00 Grand Dues for each new member initiated since last returns were made.

It will be noted in the right hand column that the above claims are all paid and the date of payment given.

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Greeting.

TO YOU, my friends and sisters in the Ladies' Society of the Brotherhood of Locomotive Firemen, your Editor sends a loving greeting. She wishes all a happy, prosperous New Year and hopes to be, in her small way, of some service to you and to our beloved Society during the coming two years.

♣ ♣ ♣

Congratulations.

By a happy chance, it is my privilege, in this, the first article I write for the Ladies' Department, to offer the congratulations of myself and my sisters to our brother, Editor Carter, upon his happy marriage. Every sister will join me, in wishing Brother Carter and his bride, who is one of Peoria's best-loved daughters, all the happiness to be attained in the future.

♣ ♣ ♣

The Outlook.

Sustained by, patterned after and auxiliary to, the Brotherhood of Locomotive Firemen, the safest fraternal insurance organization on earth today—the Ladies' Society shares in its unique, natural advantages, benefits by its experience, and is protected by its strength.

There is an old Cornish story in which Cornishmen exclaim:

"And will Trelawney die? And will Trelawney die?

"Then 30,000 Cornishmen shall know the reason why!"

We can say:

"Will the Ladies' Society die? Will the Ladies' Society die?

"Then 50,000 Firemen shall know the reason why!"

The Ladies' Society will live and neither you nor I can dip into the future and gauge the strength and power it will yet attain. Mistakes will be made. The man or woman who has never made a mistake has not lived, and this is equally true of societies. Fortunately, if errors are discovered in our Society, it has means at its disposal to correct them.

We, of the Ladies' Society, are on the eve of a great success. Believe this, my sisters, substitute *faith* for doubt, in all that concerns our future. Cease speaking of our Society as simply "a hearse to carry out our dead." True, we bury our dead, and when a sister dies, we pay to her beneficiaries the amount for which she is insured, and up to the present day we have met every obligation, *and we will continue to do so.*

This insurance, which we furnish, is but a part of our Society. We are a fraternal order, the benefits of which can not be summed up by a bookkeeper. It matters not how strong and proud we are, dark days will come and we will never know, until they are upon us, what it means to reach forth and touch the hand of a sister. Then we will realize that we have paid, not only for insurance, but for benefits that can not be written into the policy, but are the legitimate fruitage of the obligations assumed at our altars.

We are auxiliary to the foremost of the labor organizations and each year, as we become stronger, we will recognize more definitely our duty with respect to industrial conditions. The good we may then do thousands of women and children who are suffering from lack of intelligent sympathy, as well as from scanty wages, impure air, improper food and all the other things that are attend-

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ant on grinding poverty, can not be calculated in dollars and cents.

As the different phases of this, our own Society, present themselves to us and we realize the grandeur and the extent of its future possibilities we can not but feel that an all-wise Omnipotence ruled over that Convention at Chattanooga and guided our officers and delegates when they passed the wise laws whereby, at a very small additional expense to every sister, during the next two years, our Society will be continued on a sound financial basis, our business interests will be cared for by competent officers, our insurance will be protected and our future success will be assured.

♣ ♣ ♣

Officers of Grand Lodge.

GRAND COUNSELOR, *Frank P. Sargent*, Commissioner-General of Immigration of the United States. The recognition and respect that we give our Grand Counselor is his due. At his home, in the month of April, 1884, ten women, wives of locomotive firemen, met and formed the first Society. Through his efforts at San Francisco, in 1890, official recognition of the Society as an auxiliary to the Brotherhood was secured.

He has ever been the tireless, earnest and successful advocate of everything that tended to upbuild or protect the Ladies' Society. It is not strange that we, who are working with him, should seek and obey his judgment since we have always found him to be right.

With confidence we accept the leadership of this brother, who compels success in every undertaking and of whom the President of the United States said, at Chattanooga, 'I can safely rely on his judgment at all times."

GRAND PAST PRESIDENT, *Mrs. J. A. Leach.*—"Those there are whose hearts have a slope southward and are open to the whole noon of nature"—and one of "those" is our Grand Past President, beloved by all, loving all, our own dear Mother Leach.

GRAND PRESIDENT, *Georgie M. Sargent.*—Someone had to be patient, hopeful, interested, proud, never discouraged, always devoted, through the early years of the life of our Society. That "someone" was our beloved Grand President, Georgie M. Sargent, an officer whose self-sacrifice in our behalf will be appreciated more as the years come and go—a woman possessed of great tact and a most amiable disposition, coupled with the fortunate peculiarity that she will pursue and attain her object in the face of any and all obstacles. She is a rare woman born with a love for women in her heart—in short, she is an ideal Grand President.

GRAND SECRETARY AND TREASURER, *Mary E. DuBois.*—A practical business woman, with a thorough business training, reliable and conservative. She has a pleasing personality, unmarred by self-consciousness. Our business interests are safe in her capable hands.

GRAND MEDICAL EXAMINER, *Dr William Watts.*—Described by Grand Counselor Sargent as "a man who knows his business and attends to it."

GRAND VICE-PRESIDENT, *Maud E. Moore.*—A faithful and favorite sister, our first Grand Secretary and Treasurer. During her term of office she copied all rituals and by-laws with pen and ink. She has a brilliant mind, is enthusiastic and energetic and possesses a broad general knowledge of the workings of the Ladies' Society.

♣ ♣ ♣

Notes.

The Editor of the Ladies' Department has received notice that the copy for this department must be delivered to the Editor and Manager of the MAGAZINE on the morning of the 15th of each month.

Contributors will please bear this in mind and send all matter for publication in this department to

MRS. JOSEPHINE C. WATTS,
103 Seventh St.,
Peoria, Ill.

Several interesting letters have been received too late for publication this month. They will appear later.

So many Gods, so many creeds,
So many paths that wind and wind,
When just the art of being kind
Is all this sad world needs.

Every sister should read carefully the thoughtful, suggestive letter so kindly written by Third Vice Grand Master Charles W. Maier and appearing in this issue.

The sisters who attended convention at Chattanooga will be pleased to hear from Sister Katherine Weitzel, who was delegate of No. 60, Harrisburg, Pa. She writes me that her health was much improved by her southern trip. May we meet her well and strong at Buffalo.

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Let there be plenty of sunshine in your lodge room and a warmth of good, good feeling without stint. Many societies would have a larger attendance but for that "icy stare."

Every sister ought to be president of a society before she belongs to one. Then she would know what it means to stand up and appeal for expression of opinions before a formal vote is taken and have nobody offer the smallest word—negation or approbation.

Judging from the letter written by their correspondent, Holly Lodge No. 70 is made up of living, breathing, enthusiastic sisters, and we are not surprised to find them in a lodge of which Sister Shea is president and upon whose roll the name of Sister McNamara appears.

Owing to the necessary delay caused by the removal of the MAGAZINE and the change of editors of the Ladies' Department, a very prettily written letter from a "Fireman's Wife," Meadville, Pa., reached me too late for publication. We of the Ladies' Society, will hope to some time call this loyal friend of the Firemen sister.

Did you ever visit a society and have the queerest sensation come over you when you entered the room? You don't dare to smile—oh, dear, no! You look at your dearest friend. She don't dare either. All is so elegantly dignified. But say, do you know, I'd rather be "jolly good company?" Were ours the privilege of fashioning the garment of life we would weave from some shining, filmy material the outer coat of the unostentatious dignity of true culture and line it with a rich, warm coloring of joyousness and fun.

The following poetic prose composition from an unknown source will be appreciated by all who dread the "fault finder:"

"St. Peter sits at the heavenly gates, his hands on the strings of the lyre, and he sings a low song as he patiently waits for the souls of those who expire. He hears in the distance a chorus of song that swells from the foot of the throne, and he smiles as the music is wafted along, and he warbles a lay of his own: There is room in this region for millions of souls, who through sorrow and woe were bereft, 'tis for those who have suffered the melody rolls, but "fault-finders" must turn to the left. They'd say that the music was all out of tune and the angelic gown "hand-me-down," and they'd send for a jeweler in the moon to sample the gold in their crown. So while there is room for millions of souls, who through sorrow and woe were bereft, we want no complaint of the music that rolls, so fault-finders, turn to the left."

♣ ♣ ♣

Etiquette of the Lodge Room.

Parliamentary laws, intelligently used, combined with the forms of civility used in a parlor, and adapted to the occasion by a gracious and womanly tact, constitute a lodge etiquette the knowledge of which wins for its possessor the respect and confidence of all with whom she may be associated in lodge work. It is not the purpose of the writer of this article to conflict in any way with the Constitution and By-Laws of the Ladies' Society, a constitution and by-laws which needs no explanation or elucidation from her hands, and which contains special rules on special subjects which supersede, for the Ladies' Society, the general usage on these subjects. Neither does she purpose to repeat the generally accepted rules known as parliamentary law, rather to simplify and illustrate the most important of them, while seeking to benefit not the few who have given lodge work much thought and study, but the many who need assistance in doing the simplest things.

Motions.—No person can properly make or second a motion without obtaining the floor. To "obtain the floor" is to rise and address the person who is presiding as "Madam Chairman," "Worthy President," "Madame President," or by whatever title she is known in the body in session, and be recognized by her.

The presiding officer recognizes a member by calling her name. If in a strange assembly, for instance, she does not know the name, she asks, "The name, please?" and upon being told, repeats it, and the member has the floor.

Having obtained the floor, the member introduces her motion with the words, "I more," not "I motion" nor "I move you;" thus she will say, "I *move* that we adjourn," not "I *motion*," nor "I *move you* that we adjourn."

Wishing to second a motion, say: "I *second* the motion," do not say "I *support* the motion."

When a motion has been made and seconded the chairman rises and repeats it.

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DRILL CORPS, HOLLY LODGE, LADIES' SOCIETY OF THE B. L. F., BUFFALO, N. Y.

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If it has been awkwardlly expressed she may, in stating it, put it in better shape by altering the wording, but she must not change the sense in any way.

After repeating the motion, the chairman may say, "The question is now before you for discussion." A member entering a discussion should speak strictly upon the subject before the assembly. Should she have occasion to allude to any other member, she will not do so by name, but will say instead, "The sister who has just spoken," "another member," "the secretary," or any impersonal term. Directly addressing another by name in debate is unparliamentary.

If a debater wishes to speak to a member, she does it through the "chair," saying, "Madame Chairman, through you I will say to the member who has just spoken" (so and so).

When it seems to the chairman that all who will have spoken, she rises and says: "Are you ready for the question?" Members need not call, "Question! Question!" Their silence is all that is necessary. If no one rises to speak, the chairman puts the motion to vote.

* * *

Open Parliament.

The Editor adopts this method of answering the questions referred to her during the month. She will gladly continue this column, but will ask those who wish sealed answers sent to kindly furnish postage.

All questions concerning the Constitution and By-Laws or rulings of the Ladies' Society especially should be referred to the Grand President, who will gladly furnish the required information.

(1) Should the president rise when recognizing a member?

(*Ans.*) It is better not. The president rises to state and put motions and to make remarks.

(2) Will you kindly give me information upon the following point?

(*a*) When in a committee there is to be presented a minority report, and the chairman of said committee favors the minority, what is the proper way for her to proceed?

(*b*) Shall she present the report of the committee and sign it as chairman, and then also sign the report of the minority?

(*c*) Is she not bound as chairman to sign the report of the committee?

(*Ans.*) (*a*) She should sign the minority report.

(*b*) Some member of the majority is usually selected to present the report. The chairman should not sign a report she does not agree to.

(*c*) No.

(3) Will you kindly inform me what the custom is in regard to the recording of lost motions in parliamentary law?

(*Ans.*) Every vote must be recorded whether carried or lost.

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FROM THIRD VICE GRAND MASTER CHARLES W. MAIER—(*San Francisco, Cal.*) In the November issue of the MAGAZINE we read with a great deal of interest the letter of the Worthy Grand President of the Ladies' Society, in which she says she hopes that the Grand Lodge officers will help to encourage the members of the Ladies' Society in their lodge work wherever they go. In speaking for myself I will say that whenever the opportunity afforded itself, I always tried to do all I could in the way of encouraging the wife, mother, sister and daughter in this work, and I will continue to do so just as long as I am privileged to travel in the interest of the Brotherhood of Locomotive Firemen and it is consistent to do so, along with my other work. There is hardly a place I go where I can not find time in the afternoon of each day to devote two hours to a meeting, such as the members of the Ladies' Society would care to hold. I am always willing to address them on the good of their order, as well as to encourage joint meetings between the Brotherhood and the Society, believing, as I do, good results will come from them. I know that there are some who will not agree with me in this, but I have good and sufficient reasons for knowing that holding joint meetings at least once a month is beneficial to both orders, and will give my reasons why I believe they are of value. In the first place, when joint meetings are held and

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the good of the Order is thoroughly discussed, the wife and the mother learn much about the Brotherhood, how this organization has been the means of increasing the pay, shortening the hours of toil and bettering the treatment of the members of our Brotherhood. And it is here the wives and the mothers are urged to insist that the husbands and sons attend lodge meetings and pay their dues promptly, that the organization may be kept in its best possible condition, in order that the wages may be maintained and protection given to the home in case of death or disability. Members of the Order have been expelled without any one at the home knowing anything about it, through no fault of the Brotherhood, however. The fault was with the member himself, who neglected carelessly or otherwise to keep himself in good standing, and when death or disability unfortunately befell his lot, the holder of the policy held a valueless piece of paper. In the joint meeting the wife, mother, sister and daughter learns how and when the dues are to be paid, and we are sure that when they possess this knowledge many of our members will be kept from allowing their names to appear on the expulsion list. No one knows this better than delegates who go to our conventions, and have presented to them the claim of some unfortunate one who failed to do his part by the Brotherhood and probably was taken away from his family, leaving them without a dollar to become objects of charity. Had the family of members that we have known been cognizant of the method of the payment of dues in our organization, many members who have allowed their policies to lapse would have been kept in good standing by the good wives and mothers, who are always ready and willing to make sacrifices, not alone for themselves, but for the husband and father as well.

There is still another reason why the interest in the Society should be maintained, and that is because of the good that this organization is doing in cases of sickness or accident. To my own knowledge, the Society has taken care of an entire family, in the case of an accident to the husband and father, while he was not able to work, and had been off for a long time. Had it not been for the Society this family would have been an object of charity.

In this instance, it was not an act of charity to help the family on the part of the Society, but a pleasant duty for them to perform. I have always found that the members of the Society are always ready to lend a helping hand in cases of sickness or accident, should a member of our Order and his family need their assistance, and I have known them to give entertainments for the benefit of the local lodges of our Order. And still another reason for the existence of the Ladies' Society and the joint meetings between the two organizations. There are social features connected with both organizations that go to make life more pleasant. While 'tis true the Brotherhood of Locomotive Firemen is organized to protect the wages of the members and to insure a brother a certain sum of money in case of disability, we also feel that we should look to the social features of life, as well as to any other side of it. To lift the dark clouds from off the life of any one is a part of our duty, and when we meet in joint session we should try and prepare for enjoyment that will pass the hours pleasantly away. It is this kind of work that makes life sweeter and happier to every one who is privileged to spend the hours in the lodge room where such enjoyment can be had. Enjoyment oftentimes causes us to forget our little ills, dissipates the clouds of grief that sometimes hover near us, and makes life happier and life's pathway much smoother.

Certainly no one can find fault with the joint meeting, where we meet with the wife, mother, sister and daughter. We always did, and always do, consider them the best of us. Where you find them, rest assured you find a good influence over men, an influence that lasts forever and bears good fruit.

Who thinks most of us when we are out upon the rail? Is it not the good wives and mothers, who are ever praying for our safe return? Who suffers more in case of a misfortune to us than wife and mother? No one in this wide, wide world. And do we not always feel that we are safe, though in the midst of danger, when we know that their prayers are daily offered up for our safe return home from the trip? It is the prayers of our loved ones and their kind words of encouragement, while performing our daily tasks, that cause us to be so careful of the lives of those who are in our charge, knowing that some one is looking for their safe return from the journey, whether the distance be long or short. Men who love their own families will care for the lives of those who are placed in their charge and will see that they get to their journey's end in safety. Such men need nothing but the thought of home to in-

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spire them with the thoughts of doing that which is right all the time, and for such men do the wives, mothers, sisters and daughters of our organization organize to show us their appreciation of our efforts in their behalf, lending us such assistance as they can. No writer, however great he may be, can do justice to an article written in behalf of a good woman, and we know the world is full of good women.

In sickness and in death, in sunshine and in shadow, has she ever been the helpmeet of man, giving him the counsel and advice, the love and affection, that has inspired men to do right, that has gained for them name and fame that will live forever. Whether it was in war or in peace, or in the council chambers of a great nation, or on the stormy deep, or down in the dark depths of the earth, "digging the shining secret of earth's hidden treasure," or out upon the rail, at their post of duty, where'er it might be, the words of advice and comfort, of love and affection of the wife, the mother, the sister and the daughter seem to mingle in the very atmosphere they breathe, and in its vibrations they can hear the whispering sounds of "safe return home to those who love you, that we may enjoy happy hours again, mingled together in that sanctuary that has given to this world all kinds of laborers."

We believe that no one can dispute the good work of the Ladies' Society in the past, and we hope that the future may be full of promise and prosperity and that this organization may be the shining light that will guide the way to the place where contentment and happiness reign supreme.

♣ ♣ ♣

FROM HOLLY LODGE NO. 70—(*A Member, Buffalo, N. Y.*) The report of the proceedings of the convention was looked forward to with much interest and the same was read at our meeting October 7th by our delegate and President, Sister Sheay.

After the evening's work all present enjoyed a very pleasant hour in the dining room, where a good supper was served, and we listened to Sister Sheay and Sister McNamara tell of the pleasant days spent with the sisters at Chattanooga.

The drill corps, composed of members of our lodge, is doing some very good work. They have given one successful entertainment in our hall and two house card parties.

October 29th No. 241, B. of L. F., gave a social and one of the numbers on the program was work by our drill corps. Each time the corps presents something new and it receives the praise and encouragement it deserves.

We extend our deepest sympathy to Brother and Sister Parish in the loss of their daughter, whose death occurred October 28th, after a long and painful illness.

To all the officers for the coming two years we wish success in the good work they are doing.

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FROM L. S. NO. 49.—(*President, Minneapolis.*) It was my privilege to attend the convention at Chattanooga as a delegate. I received help and encouragement there, and now feel more capable of performing my duties as an officer in my own lodge.

We have two candidates to initiate at our next meeting and two to be balloted upon. We think this is doing very well, as Minneapolis has two other lodges of the Ladies' Society, and still another one is soon to be started.

We extend a cordial invitation to the sisters to visit us at any time. We meet the second and the fourth Tuesdays.

We are now preparing for a Christmas sale to be held the last meeting in December.

I wish to say the sisters of No. 49 are very grateful to the brothers of 270, B. of L. F., for the many favors received from them.

♣ ♣ ♣

FROM L. S. 163—(*Secretary East St. Louis, Ill.*) World's Fair Lodge No. 163 is still progressing. We were organized in May, 1902, with sixteen charter members. We now have twenty-five good workers—quantity and good quality as well.

Our President is one whom it would be hard to replace, and every member gives her the support she deserves.

We would appreciate a visit from some of the Grand officers, knowing that it would help us in our work.

Let each and all of us do our part and at all times give every encouragement. Encouragement is a good thing to give as well as to receive.

Our Brotherhood boys show much interest in our Society, especially the joint meetings. We hope to have some drills in the near future with which to entertain them.

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FROM L. S. 144—(*Mrs. Laura Bailey, Yoakum, Tex.*) Jassamine Lodge No. 144 is increasing in numbers and becoming more interesting every meeting. Sister O. Kinsley's report of the convention was fine and appreciated by all.

Our Lodge extends deepest sympathy to the sorrowing relatives of J. R. Peterson, one of our Brotherhood boys, who was so brutally stabbed and who died from his wounds.

I wish all lodges of the Ladies' Society success, and also our Editor.

(Your Editor appreciates your kind wishes and is grateful to you and to all the dear sisters who have written her kind words of encouragement and God speed in her work.)



Words.

Ah me! these terrible tongues of ours!
Are we half aware of their mighty powers?
Do we ever trouble our heads at all
Where the jest may strike or the hint may fall?
The latest chirp of that "little bird,"
That spicy story "you must have heard"—
We jerk them away in our gossip rash,
And somebody's glass, of course, goes smash.
What fames have been blasted and broken,
What pestilent sinks been stirred,
By a word in lightness spoken,
By only an idle word!

A sneer—a shrug—a whisper low—
They are poisoned shafts from an ambushed bow!
Shot by the coward, the fool, the knave,
They pierce the mail of the great and brave.
Vain is the buckler of wisdom or pride
To turn the pitiless point aside;
The lip may curl with a careless smile,
But the heart drips blood—drips blood the while.
Ah me! what hearts have been broken;
What rivers of blood been stirred,
By a word in malice spoken,
By only a bitter word.

A kindly word and a tender tone—
To only God is their virtue known!
They can lift from the dust the abject head,
They can turn a foe to a friend instead;
The heart, close barred with passion and pride
Will fling at their knock the portals wide;
And the hate that blights and the scorn that sears,
Will melt in the fountain of childlike tears.
What ice bound griefs have been broken,
What rivers of love been stirred,
By a word in kindness spoken,
By only a gentle word.

—Exchange.

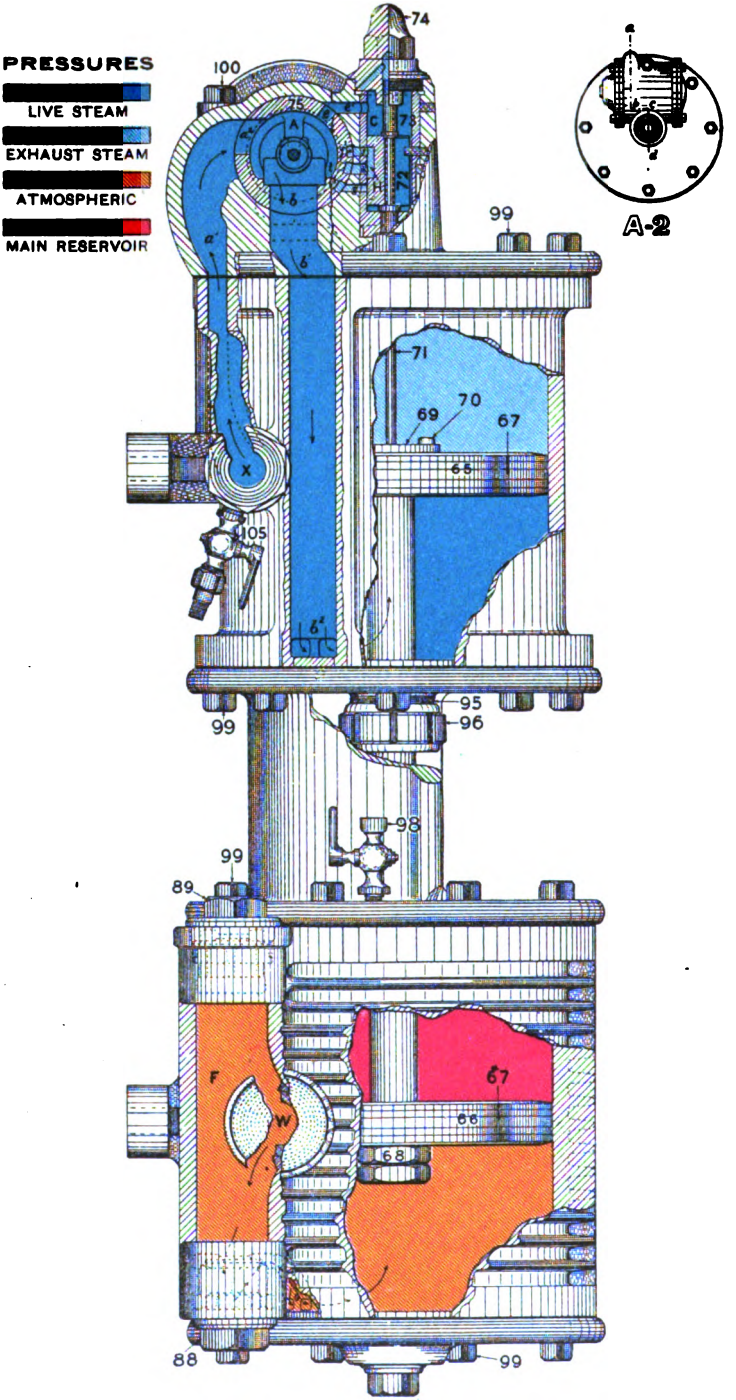


Do you think none have known but yourself all the pain
Of hopes that retreat and regrets that remain,
And all the wide distance Fate fixes, no doubt,
'Twixt the life that's within and the life that's without?
Which one of us finds the world just as he likes?
Or gets what he wants when he wants it? Or strikes
Without missing the thing that he strikes at the first?
God means us all to be happy, be sure—
He sends us no sorrows that have not some cure;
Our duty down here is to do—not to know.
Live as though life were earnest, and life will be so.

—Owen Meredith.

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Locomotive Firemen's Magazine Educational Charts

WESTINGHOUSE AIR BRAKE SERIES

PLATE II — NINE AND ONE-HALF INCH PUMP (Side View)

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BROTHERHOOD OF
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EDITOR & MANAGER

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February, 1903.

Plate II—Nine-and-One-half-Inch Pump (Side View).

(*Westinghouse Air Brake Series.*)

PLATE II of the Westinghouse Series of the LOCOMOTIVE FIREMEN'S MAGAZINE Educational Charts is a sectional and perspective view of the intake side of a 9½-inch air pump (upward stroke).

The purpose of this drawing is to show the manner in which the steam and air enters the lower ends of the two cylinders. It will be noted that the steam from the boiler enters at X, thence upward, and to the *back* of the pump, through passage a^1 and a^2 into chamber A of the main valve. From chamber A the steam descends through port *b* and passage b^1, down the *side* of the pump, passing into the bottom end of the cylinder through the ports b^2 at lower end of passage b^1.

It will be noted that the reversing slide valve 72 remains in the position to which it was drawn by reversing rod 71, when the piston 65 had reached the end of its travel on the preceding downward stroke, notwithstanding the piston is now moving on its upward stroke.

The pressure in the top end of the air cylinder has reached approximately 25 pounds (gauge pressure), and in this drawing it is presumed that the reservoir pressure has just reached 25 pounds in the process of pumping up train line pressure. For this reason the color that appears above piston 66 indicates "main reservoir pressure." It is understood that the higher the pressure in the main reservoir the longer will be the travel of piston 66 before main reservoir pressure is reached in the air cylinder. If the main reservoir pressure be 90 pounds, piston 66 will have moved approximately three-fourths of its entire stroke before reaching reservoir pressure.

The pressure of air in the top end of the air cylinder presses upper left hand valve 86 down on its seat, and the partial vacuum created by the upward motion of piston 66 causes lower left hand valve 86 to rise from its seat, and draws the air through intake W and passage F, down through a passage on the *outside* of the bushing of the valve, through the small round ports in the bushing and into the chamber below the valve, thence upward and out under the seat of the valve, thence downward and into the lower end of the air cylinder through the ports *o*.

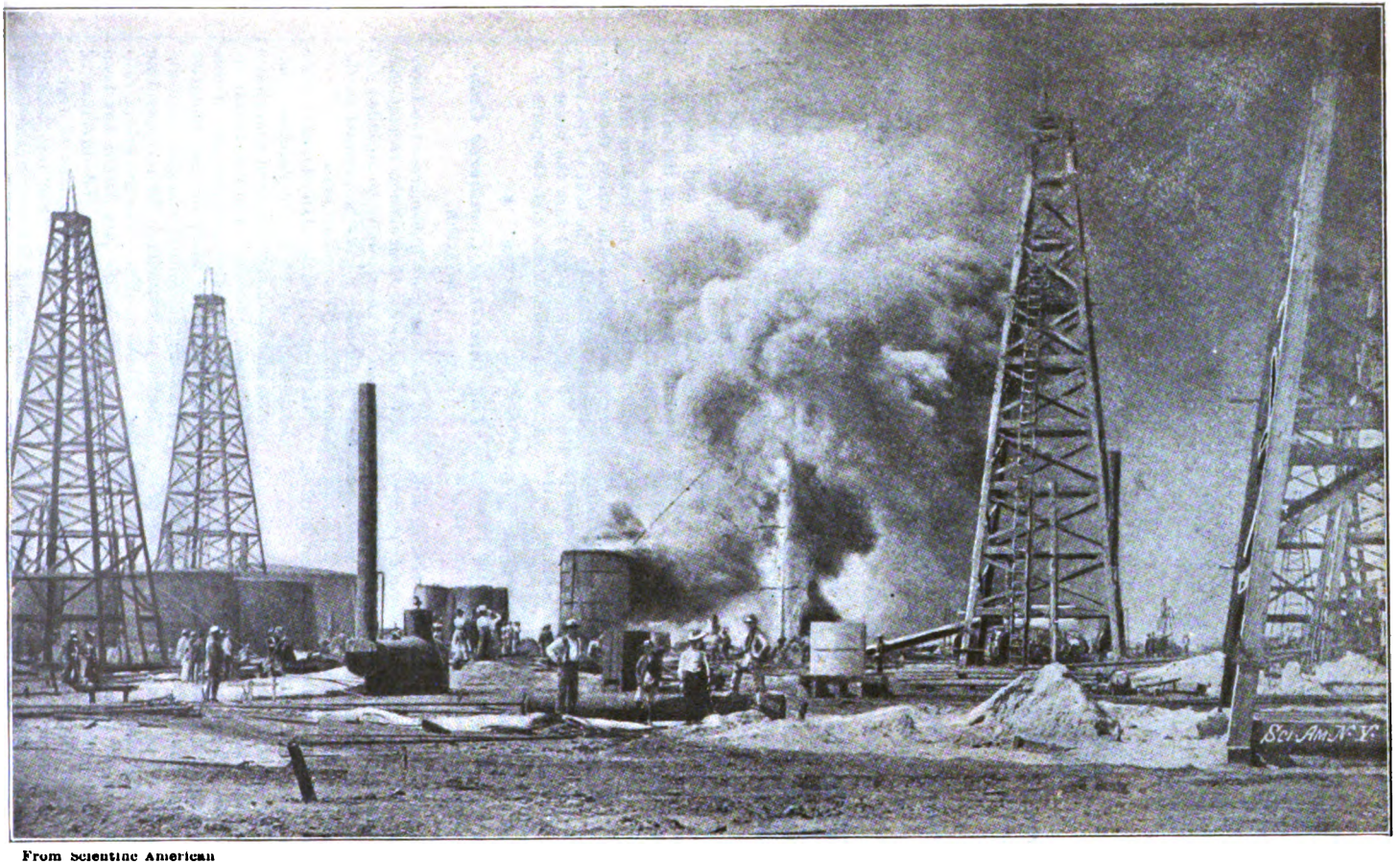
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The Interstate Commerce Commission.

In its last report to Congress the Interstate Commerce Commission recommends interstate commerce laws be amended and that additional powers be granted to the Commission. The report says:

"It is now nearly sixteen years since the passage of the act to regulate commerce, and more than thirteen years since it has been amended in any material respect. At the time of its adoption it was understood to be more or less tentative and experimental, and changes were anticipated as experience in its operation might show needful. The growth of railway systems in the last decade has been remarkable. The form and direction of this growth present questions of regulation which were not taken into account when the existing law was framed, and

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From Scientific American

AN OIL WELL FIRE IN THE TEXAS OIL FIELDS

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it is not surprising that its provisions have proved unequal, in some respects unsuited, to existing conditions. Obviously, the main purpose of the law was to prevent unreasonable charges and undue discriminations. The prevalence of these evils and their resulting injustice led to its enactment.

"The offenses which excited public indignation were prohibited and standards of conduct were prescribed which are founded on natural justice. In the principles declared there is no unsoundness or want of adequate statement. The defect is not in the rules formulated but in the machinery provided for the enforcement of those rules. All the details of regulation incorporated in the act, its requirements as to publishing and filing tariffs and making annual reports, its methods for presenting complaints and conducting their investigation, its criminal remedies, the authority of the Commission to make orders founded on ascertained wrong-doing, and various other administrative features, were designed solely to give effect to its substantive provisions, and thereby secure to the public reasonable charges and impartial treatment.

"If the actual operation of this law and the efforts of the Commission to make it effective had disclosed only minor and incidental defects, if its leading purposes had been fairly attained and its expected usefulness realized, the Commission might be excused from repeating its recommendations for amendment. This is not saying that the law is of little value, or has failed to bring about important reforms. On the contrary, it has furnished a considerable restraint upon the carriers subject to its provisions and promoted in a substantial degree the ends which it was designed to secure. Nevertheless, its inadequacy as a remedial measure was long ago discovered and further trial has illustrated the various respects in which it is insufficient. While its purposes are clearly beneficent, and while the principles which it embodies are more and more seen to be correct and salutary, the means devised for giving practical effect to its mandates are concededly imperfect. That this imperfection is curable is equally conceded. The fullest power of correction is vested in the Congress and the exercise of that power is demanded by the highest considerations of public welfare.

"Were it deemed possible to add weight to previous recommendations, or to emphasize the need for their prompt adoption, this portion of our report might be greatly extended. It is not believed, however, that this subject can be more forcibly presented or the situation more clearly explained than has been done in former reports. If the representations already made do not induce favorable action it is certainly not the fault of the Commission. A sense of the wrongs and injustice which can not be prevented in the present state of the law, as well as the duty enjoined by the act itself, impels the Commission to reaffirm its recommendations, for the reasons so often and so fully set forth in previous reports and before the Congressional committees. Moreover, in view of the rapid disappearance of railway competition and the maintenance of rates established by combination, attended as they are by substantial advances in the charges on many articles of household necessity, the Commission regards this matter as increasingly grave, and desires to emphasize its conviction that the safeguards required for the protection of the public will not be provided until the regulating statute is thoroughly revised."

An Asiatic Railway Trip.

An English correspondent thus describes the railway trip from London to Shanghai in the Kobe Herald, of Japan:

"Rail connection is now complete to Port Arthur, except for the steamboat trip of five hours across Lake Baikal; and the trains run close to the wharves on both sides of the lake. From Irkutsk eastward, the old line is followed to a point somewhat east of China. The new line, branching to the south, enters Manchuria territory and brings up at a station called Manchuria. Here the Russian railway proper ends and the Chinese Eastern Railway begins. The main line of the Chinese Eastern Railway strikes eastward, directly across Manchuria, to reach Vladivostock. At Harbin, however, the South Manchurian line diverges to the south through the rich valley of the Sungari and so to Port Arthur.

"Coming eastward it requires, by the daily train, nine days from Irkutsk to Port Arthur. This period is divided into three fairly equal sections by the division points, Manchuria and Harbin, where change of cars must be made and new tickets bought. There is a 'train avec restaurant' which runs at present once a week, making better connections; but, as yet, it is only scheduled to run between Irkutsk and Manchuria. Between Irkutsk and Moscow, the through trains run only twice a week. It is therefore

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necessary to plan the connection or to allow for delay. My schedule of time was as follows: Berlin to Moscow, two days; Moscow to Irkutsk, eight days; Irkutsk to Port Arthur, nine days; add for connection, one day; total necessary, twenty days; add, for through trip, London to Berlin, two days, and Port Arthur to Shanghai, three days; total, London to Shanghai, twenty-five days.

"The service is an all-the-year service, and the ice-breaking steamers on Lake Baikal are supposed to keep up constant commnuication; but, of course, delays would be more serious in winter travel.

"Between the Irkutsk and Manchuria stations, one can travel 'first class,' although this means here about the same as second class in European Russia. Crossing the desert between Manchuria and Harbin, one finds the worst accommodation of the line. A third-class coach is labeled second class and reserved for first-class passengers. The 'differential' in the price of tickets does not soften the seats, but it improves the society. The coaches are of medium size and have only one pair of wheels at each end; this fact, with the paucity of springs, aggravates the roughness of the road. The seats, as in all transcontinental trains, run crosswise of the coach, leaving a passage way at one side, running the length of the coach. The two seats facing each other in each compartment, together with the two upper bunks which can be put in place, are amply broad and long for single beds. Of course, the traveler must provide his own bedding.

"From Harbin to Port Arthur there are, although no first-class, genuine second-class coaches of the omnibus type—that is, the compartments are not closed in, but the partitions extend above the upper bunks; and a party holding four tickets (usually three, or even two will suffice) can secure privacy by tacking up a steamer rug, or something lighter, across the open end. From Harbin south, for a day's journey, the track is the newest and roughest of the whole line, so some jolting must be expected. The entire Chinese Eastern Railway is so recently built—being, in fact, not yet formally open to traffic—that the ordinary traveler must be prepared to 'rough it.'

"Long stops and plenty to eat, of fair quality but poor variety, may be predicted of the whole route east of Irkutsk, excepting one or two stretches of desert. However, everybody will find comfort in carrying a basket, with an auxiliary supply. Fruit and butter are almost unknown terms in Siberia and western Manchuria. The one characteristic and indispensable requisite of the trip remains to be mentioned—a teakettle. Everybody has need of it, whether he go himself to draw boiling water from the vat which is found at every station or whether he send his servant to do it for him. A small lamp or candles will also be found serviceable; the train in these eastern parts is illuminated only with candles, and these are distant and dim. Wash basins will be found convenient, besides the usual toilet outfit.

"These observations do not apply for the most part, to the road west of Irkutsk, especially if one travels first class. The through trains there are provided with dining cars. Even there, however, it is quite possible to make use of a lunch basket ad interim. Going west, it would be safer to provide the staples at Shanghai; but if there be time at Port Arthur, a first-class stock of European and American supplies can be found there.

"West of Irkutsk, and in northern Europe generally, second class is good enough for anybody. In the rougher regions of the East, one will naturally choose the best accommodations to be had. In the following summary, the figures for rates west of Irkutsk include the extra charges for sittings or sleeper; east of Irkutsk, there are none such:

Berlin (via St. Petersburg) to Moscow (second class)	$28 84
Moscow to Irkutsk (second class)	41 72
Irkutsk to Manchuria (first class)	13 39
Manchuria to Harbin (second class)	10 30
Harbin to Port Arthur (second class)	11 33
Total, Berlin to Port Arthur	$105 58
Food, twenty days, say	30 00
Hotel rooms en route	5 15
Total necessary expense	$141 63
Add for through trip:	
London to Berlin (first class), say	25 75
Port Arthur to Shanghai, say	18 02
Total, London to Shanghai	$185 40

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The First Railway Train.

A painting by Mr. E. L. Henry is now attracting attention and has for its subject the first railway train operated in the North Atlantic States. The halftone reproduction published herewith but poorly sets forth the merits of the original painting. Mr. C. Klackner, 7 West Twenty-eighth street, New York City, has

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published reproductions of the painting in engravings, 14x34½ inches for the following prices: Artist's proofs, $15; colored prints, $15; india prints, $10. The following press notice from Illustrated American of Mr. Henry's painting will convey information to those interested:

"Mr. E. L. Henry's picture, 'The First Railway Train'—that is, the first railway train in the northern part of the United States—is as likely to become as popular as 'Frith's Railway Station' was many years ago. In No. 61 of the Illustrated American was published a silhouette of this 'first railway train,' by William H. Brown, a traveling silhouette artist who happened to be in Albany the day it started. This was studied by Mr. Henry, who also made scale drawings of the engine and cars now in the possession of the Society of Engineers of New York City. Information on the subject he gathered at the National Museum, Washington, from 'Mensel's Annals' at the State Library at Albany; from the newspaper accounts of the day, and from several persons—now well advanced in years—who witnessed the event. Among these was the late Doctor Paine, the noted homœpathist, who took the initial trip and wrote an account of it at the time. From him Mr. Henry was able to obtain the color of the cars—or coaches—and other general information which the accounts of the day did not give. This was a fortunate opportunity for the artist, whose picture would not have been as historically accurate as it is.

"It was September 9, 1831, that this memorable trip of the 'first railway train' was taken. The Hudson and Mohawk Railroad had completed a track from the head of Lydius street, Albany, to the brow of the hill, Schenectady, and since August 13th had been running its cars by horsepower. From the West Point Foundry it had obtained one of the wonderful new steam engines, known as the DeWitt Clinton—the third ever built in the United States. Curiosity was, of course, on tiptoe when it started, at about 10 o'clock in the morning, from Lydius street. Mr. Henry's picture represents the start from the 'Old Hickory Inn,' two miles from Albany. The engineer, who can be seen in the picture attending to the machinery of the engine, was a man named David Matthew. The name of the conductor, who can be seen running with a brand new horn in his right hand, was John J. Clark.

"In the first car were seated ex-Governor Yates and Thurlow Weed, the latter on the middle seat. In the second car were Joseph Alexander and 'Old' Hays, the famous High Constable of New York. History relates that the start was very jerky and a most uncomfortable experience for the passengers; but they reached Schenectady safely."



"THE FIRST RAILWAY TRAIN"

Reproduction of painting by E. L. Henry, and copyrighted by the author. See article on subject

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Railway Construction During 1902.

Incomplete reports indicate that during the past year more than 5,550 miles of railway were built in the United States, nearly half of which is in the southwestern States. The following table is from the Railway Age of January 2, 1903:

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States.	No. Lines.	Miles.
Alabama	13	82.89
Arizona	6	36.63
Arkansas	24	307.88
California	8	94.57
Colorado	5	80.75
Connecticut	1	4.50
Florida	7	106.77
Georgia	11	201.87
Illinois	11	141.38
Indiana	7	97.55
Indian Territory	11	540.89
Iowa	6	175.40
Kansas	5	59.09
Kentucky	6	64.38
Louisiana	10	170.56
Maine	4	72.40
Maryland	1	4
Massachusetts	1	4
Michigan	16	100.42
Minnesota	14	216.23
Mississippi	9	135.50
Missouri	14	210.18
Montana	2	53.59
Nebraska	2	73.52
Nevada	1	8.18
New Hampshire	1	6.15
New Mexico	6	357.88
New York	7	55.71
North Carolina	6	56.31
North Dakota	5	113.42
Ohio	7	59.99
Oklahoma	12	532.36
Oregon	2	19
Pennsylvania	21	159.29
South Dakota	3	27.23
South Carolina	5	45.07
Tennessee	5	27.24
Texas	23	479.94
Utah	3	142.90
Vermont	1	4
Virginia	6	28
Washington	11	125.16
West Virginia	18	92.13
Wisconsin	12	170
Total in forty-four States and Territories	349	5,548.91

By groups of States the following is the distribution of miles of railway built:

	Miles.
New England States	95.05
Middle States	219
Central Northern States	567.34
South Atlantic States	533.15
Gulf and Mississippi Valley States	481.57
Southwestern States	2,570.11
Northwestern States	659.39
Pacific States	426.44

♦ ♦ ♦

*Public Regulation of Railways.**

I am asked to prepare a paper upon "National Regulation of Railways in the United States." There is none. There is state regulation to some extent, and national supervision which is of value. Regulation implies a control; and there is and can be no control by the government over interstate transportation until some method is adopted to supervise and correct railway rates. The vast consolidations of the past few years, the use of injunction to prevent departures from the published tariff, the lesson which railroad operators themselves have learned, that competition in rates is always suicidal, since it does not increase traffic and does reduce revenues, have largely eliminated competition. As the formation of these combinations has proceeded, the public has been repeatedly assured that there was no danger of any advance in freight rates. The absurdity of this has been evident from the first to all thinking men, and is at last becoming patent to the unthinking. Louder than words speak the thing done. In the winter of 1899 the grain rate from Mississippi River to New York fell to 12 cents per 100 pounds; today it is 22½ cents. Few people appreciate the significances of these slight increases. While almost nothing as applied to a single one hundredweight, they are enormous in the aggregate. On the first of January the rate on grain from Buffalo to the seaboard and corresponding points is to be raised 1 cent per bushel. This slight advance, as applied to the average quantity of grain moving through Buffalo for the last ten years, would amount to $1,500,000 annually. The Interstate Commerce Commission has just decided, after extended investigation, that a recent advance in rates on hay was unjustifiable and that the rate should be restored. No attention has been or will be paid to this decision, since there is no way in which it can be enforced; but let it be noted that the testimony in that proceeding shows that this increase costs producer and consumer in the territory to which it applies approximately two million annually. Within the last three years some sort of a combination or arrangement between the six or seven railroads which carry from the mines all the anthracite coal in the United States has been effected, by which competition, both in the mining and in the carrying, has been practically eliminated. The effect of this had been, before the breaking out of the last strike, to increase the price of this commodity in domestic sizes to the consumer about one dollar per ton, often considerably more. Complaint is made that the rates now charged by these anthracite coal roads are extravagantly high in all directions. Without expressing any

*From Paper read by Charles R. Prouty, of the Interstate Commerce Commission, before the American Economic Association at Philadelphia, December 27, 1902.

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opinion that this is the case, let us assume for a moment that the rate from the mine to the consumer is 50 cents a ton too great. About 50,000,000 tons are produced and marketed annually, and upon that theory someone is paying $25,000,000 more than ought legitimately to be exacted. And to whom is it paid? To the owners of railway stocks, and they, generally speaking, are the rich and the very rich members of society. All this is no reason why railway property should be treated unjustly. It simply shows that the railway, the railway combination, is one of the most subtle and dangerous instrumentalities in effecting an unjust distribution of wealth by taking from the poor man wrongfully and giving to the rich. The act to regulate commerce insures the widest publicity for all the operations of railways, but that has not and can not prevent the imposition of unreasonable rates. Some years ago the Supreme Court of the United States decided that the Sherman anti-trust law applied to the operations of interstate railways, and forbade all agreements between them for the establishment or maintenance of rates. Its only effect so far has been to intensify that monopoly. Today, with respect to interstate transportation, and that is the great body of all transportation, the public has no safeguard against railway monopoly. It should have, and there can be but one. In some manner just to all parties the Government must exercise its right to supervise the rate, must compel these carriers to impose in the first instance a reasonable charge. It will hardly be suggested that Congress could directly supervise the interstate railway rates of this country; hence, the only practical method is by the use of a commission. I am not discussing now the powers of the Interstate Commerce Commission. There is too little of that power to admit of intelligent discussion. Such a commission should be an expert body, composed of the best men obtainable and occupied entirely in the consideration of such matters. It should obtain the fullest possible information. It should hear all anyone desires to say, but when this has been done its conclusions still must rest in the good judgment of its members. Its decision is the act of an expert body, and just in proportion as the members of that body have had experience, just in proportion as they are men of honest, mature and independent judgment, so is that decision of value. The railway industry is the largest, but one, and the most important of all industries. Any unjust interference with it, or any unreasonable embarrassment of it, would be both wrong and foolish. A commission like that suggested, which is at once an investigating and a deciding body, may be to an extent partisan. The questions passed upon are of tremendous importance. Some method ought to exist by which possible mistakes upon its part could be corrected. Such security is already provided to an extent by the Constitution of the United States.

It has long seemed to me that we must create a new tribunal, in the nature of a commerce court, to deal specially with these questions; a tribunal with judicial attributes, but discharging the combined functions of court and commission, as does the English Railway Commission today.

1. Whatever body enforces the orders of a commission must make decrees and execute process. A commission itself can not be invested with these powers; the special court suggested could be.

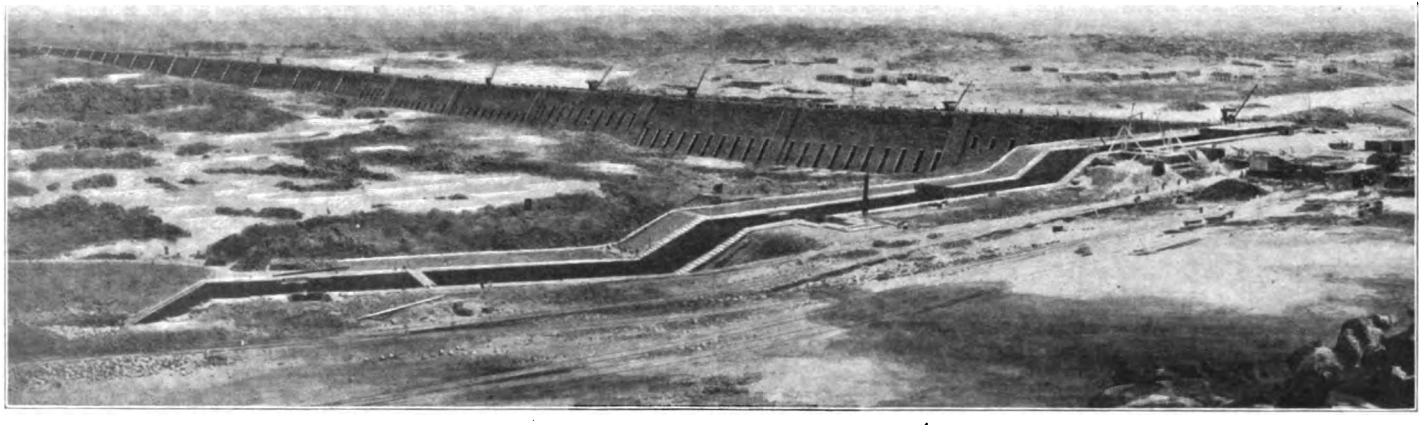
2. A commission whose members hold office for limited terms is not permanent in its personnel, and might be subject to influences of a sectional or political nature. The members of a tribunal like that suggested would hold office for life, would possess all the conservatism and independence of judges and would afford to property the protection thereby assured.

3. The main objection to entrusting this duty to the present courts is that the questions involved are not properly law questions. A court like that suggested would be occupied mainly in the consideration of such matters and would become even more familiar with them than the commission itself.

4. Such a court would be able to act promptly; and this is the essence of regulation, especially railway regulation. If there were no other reasons for not committing this task to the present courts the interminable delays attendant upon that mode of procedure would be a sufficient one.

What I desire to emphasize is not the method, but the fact that in some way the Government must determine whether railway charges are reasonable, and if not, make them reasonable. It is said that these questions will settle themselves; that in the grand march of human progress these things will somehow all come out right. Just what right may be, or just why the future is to be righter than the present, or for what reason a

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THE GREAT ASSUAN DAM

This view is from the north or down-stream side, and shows the canal and locks in foreground, through which vessels pass, and was made before completion of dam, while water was at low stage

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thing which is wrong should not be corrected now, is not stated. It is also said that the making of a rate is a matter of such delicacy that only the expert traffic manager can deal with it. One would almost fancy that freight rates were made as birds build their nests, by instinct, and that the entire quantity of rate-making instinct was already monopolized by the railways. Very recently one of these gentlemen testified before the Interstate Commerce Commission that in his opinion all rates were too low. The last annual report of his company shows that it earned during the year ended June 30, 1902, the interest upon its funded debt, a dividend of 7 per cent. upon its preferred stock and nearly 12 per cent. upon its common stock; although it only paid 6. I cheerfully concede the distinguished ability of that gentleman. It all comes to this: Railway transportation is today a monopoly. This you can not prevent. You can control the monopoly by controlling the charge which it exacts. This should be done wisely and carefully, but it must be done.

♣ ♣ ♣

The Great Assuan Dam.

The first of a series of great irrigation undertakings has just been completed in Egypt, which, if followed up as proposed, will restore to the land of the Pharaohs much of its ancient glory and importance. The illustrations published herewith are evidence of the magnitude of the first dam. From the London Engineer the following information is taken:

"Mehemet Ali, the founder of modern Egypt, was eager to emulate the fame of the ancient Pharaohs, who constructed Lake Mœris, and he urged on his engineers the importance of resuscitating this lake. It has, however, been the good fortune of Lord Cromer to lay the foundation stone of that series of works which is to usher in an era of prosperity such as we read of in the time of the great Pharaohs of the twelfth dynasty. We live in an age of imperialistic ideas, and the Lake Mœris of today will not be an isolated lake in one corner of Egypt, but it will undoubtedly be a series of reservoirs at the sources of the Nile. Lake Tana, at the source of the Blue Nile, with an area of 3,000 square kilometers, and catchment basin of about 18,000 square kilometers, will be able to supply 6,000,000,000 cubic meters of water per annum. Lakes Victoria and Albert Nyanza, at the sources of the White Nile, with areas of 70,000 and 4,500 square kilometers respectively, will be able to supply 12,000,000,000 cubic meters per annum. Lakes Tana and Victoria, with rocky sills and overfalls at their outlets, will not need to have their surfaces raised. The water will be drawn from them by widening the sills or cutting them down or tunnelling. Lake Albert will need to have its surface raised three or four feet by a weir at its outlet, but this will be done easily, as its shores are perfectly barren and within British territory. Such weirs fear no earthquakes. These mighty reservoirs will be the modern representatives of Lake Mœris, and will worthily fulfill their mission, a mission which has been thus described in the report of 1894 on the Nile valley reservoirs: 'The day these works are carried out at the sources of the Nile, the lakes will take their proper place in the economy of the water supply, and we shall be able to say of them in their entirety, as we can say of them today in their degree, that what the snows of the Alps are to the Po, Lakes Victoria, Nyanza and Tana are to the Nile; and what the Italian lakes are to the plains of Lombardy, that Lake Albert is to the land of Egypt.'

"In addition to these works at the sources of the Nile, training works will be undertaken in the White Nile itself between Gondokoro and Fashoda. These works will be undertaken with the object of ensuring that the waters issuing from Lake Albert are not being wasted in the marshes of the sudd regions, but are being conducted on to Egypt. They will not only add to the quantity of the water entering Egypt in summer, but also to its quality. Dr. Schweinfurth, the eminent African traveler and savant, was the first to call the attention of the Egyptian government to the necessity of closing the spills from the White Nile to the mouth of Gondokoro, and so beginning the training of the river. He very rightly said: 'Many years would elapse before the desired result would be obtained by the strengthening of the banks, but the works would be increasingly felt every year in Egypt as the works progressed.' These training works, it has just been stated, would improve the quality of the water entering Egypt, and that is a point of vital importance to the country. When the Assuan reservoir was first advocated there was always a good deal of anxiety about the unwholesome water which comes down from the swamp region of the White Nile in May and June during years of low supply, and which pollutes the Nile so

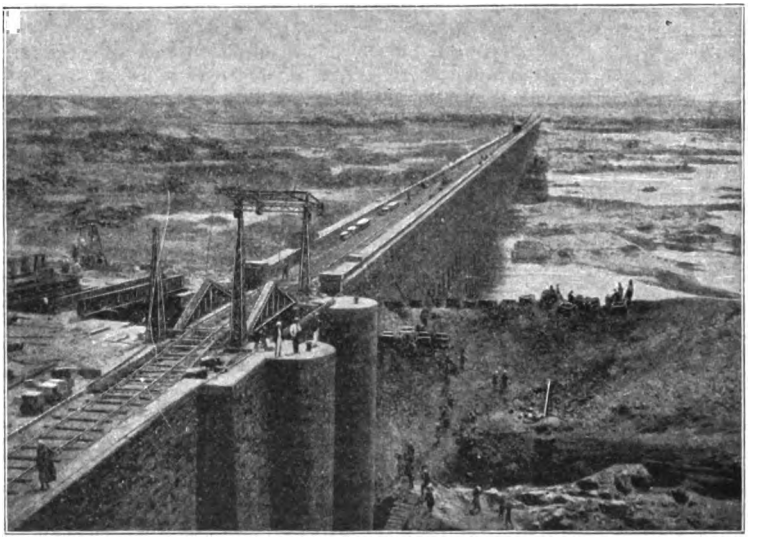
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thoroughly that even the aeration it gets as it traverses the six cataracts of the Nile does not succeed in destroying its offensiveness. During the Sudd cutting operations of 1900 the green water which came down the Nile was held up a few meters at the Assuan dam owing to the building operations, and it became quite fetid in the deep pool of 30 kilometers upstream of the Assuan dam. Moreover, in this reach all the fish died. It was a very unpleasant prognostication of what might happen in the future.

"This green water comes down from the swamps which border on the White Nile south of Lake No; the swamps in years of low supply get cut off from the main stream and gradually dwindle down owing to evaporation. They become fetid, and when the rising waters overflow them and mingle with them and form one stream, we have the green water so dreaded at Cairo. The larger the quantity of water in the river the less chance is there of these swamps being cut off. Indeed, in years of good supply down the White Nile the green water is not perceptible. The swamps are never cut off from the main stream and never stagnate.

"Now with abundance of water coming down from Lake Albert Nyanza and the spills north of Gondokoro closed, Lake No would again become what it undoubtedly was in the past, a reservoir of extraordinary capacity; which, with the aid of a weir at Tewfikieh or Abu Zeid, or even possibly the Sixth Cataract, would keep the whole reach of the White Nile from Lake No northwards up to the level of the phenomenal summer of 1879, when the water entering Egypt in summer never fell below 1,300 cubic meters per second, capable of irrigating 4,000,000 acres in summer. If this were to happen Lake No should certainly have its insignificant name changed to Lake Mœris. It would provide not only abundance of water, but abundance of good water to Egypt.

"Egypt has all this wealth of water to draw upon, and yet the Egyptian government, acting upon the advice of its technical advisers, has decided to construct, within Egyptian territory, one reservoir which can always be held in reserve to meet contingencies. The reasons for this action are given in the report of 1895 on the Nile valley reservoirs: 'Since then we have further considered the problem, and have concluded that whether the sources of the Nile or the sills of any of the other cataracts of the Nile are utilized for water storage, it is absolutely necessary, in the interests of irrigation, to have near at hand, at the point where the Nile enters Egypt, a reserve of water to meet



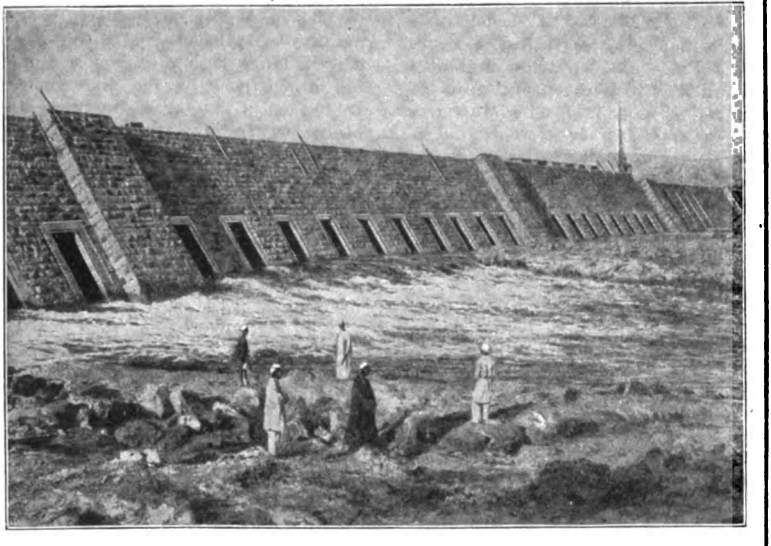
THE GREAT ASSUAN DAM

This view was made before completion of dam and is from the south or up-stream side, looking east

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any contingencies which might arise. These contingencies would arise from the fact that some of the more important summer crops are incapable of standing a fifteen days' drought, while the summer discharges of the reservoirs would probably take eleven days to reach the canal heads from the first cataract, twenty days from the second, twenty-three days from the third, thirty-three from the fifth, thirty-nine from the sixth and ninety days from Lake Victoria.' The reservoir which has been constructed in Egyptian territory is the Assuan reservoir, to form which the Assuan dam has been built."

It is said that the reserve supply of water held by the Assuan dam will make it possible to irrigate 1,600,000 acres of fertile land that now is unproductive, and that the revenue to the Egyptian government arising therefrom will amount to nearly $2,000,000 a year.



THE GREAT ASSUAN DAM

This view is from the north or down-stream side, and was made before completion of dam



English-American Locomotives.

And now the British press will have another "patriotic" convulsion. It will be remembered that some time ago certain English railway companies purchased a few locomotives from American builders. Such an unheard-of proceeding created a journalistic panic. The British editors accused the railway officials of "lack of patriotism," and a general feeling of indignation spread throughout the Island. After trying in vain to "square themselves" with the public the guilty railway officials at last made peace by denouncing the American locomotives as "ugly," "dirty," "uneconomical," and "poorly constructed," and promised to never, never again to be guilty of such treason.

But a new difficulty has arisen. Canadian railways are in immediate need of locomotives, which can not be procured from Canadian or American builders. The orders have been placed with British shops—but the contract specifies that the locomotives must be "American" in design! If it was "unpatriotic" for English railway officials to purchase "American" locomotives what will it be for English builders to construct "American" locomotives? If this design of locomotive was not fit for use on British railways how is it that Canadian railways will have no other? As in the United States manufacturers of other countries do not hesitate to use the "flag" for profit. Such is the way of the world.

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*Safety Appliances.**

From the annual report of the Interstate Commerce Commission the following information concerning the effectiveness of the "Safety-Appliance Law" which was enacted by Congress at the instigation of the railway brotherhoods:

The gratifying results of the safety-appliance law of 1893 have been increasingly evident during the present year. The number of persons killed and injured in coupling and uncoupling cars during the year ended June 30, 1902—the first entire year reported since the law went into full effect—shows a diminution as compared with 1893, the year when the law was passed, of 68 per cent. in the number killed and 81 per cent. in the number injured. In 1893 the number of casualties from this cause was 11,710, of which 433 were killed and 11,277 were injured. In 1902 the total number was 2,256, of which 143 were killed and 2,113 injured. This shows a reduction of 9,454; and it is to be borne in mind that the number of men engaged in this work is much greater now that it was in 1893.

But the report goes on to say that casualties continue to occur, and their number is such as to call for continued and earnest effort to eliminate their causes. Although we have the automatic coupler, there are dangers against which it does not fully provide, such as cars moved while not in complete running order; poorly constructed couplers, cars failing to couple except by violent impact, leading to breakage, delays and annoyances; men going between the cars to prepare for a second coupling trial; defective uncoupling levers or rods and their connections. A perfect uncoupling device is as clearly required by the statute as is the automatic coupler.

The report mentions data as contained in a report by its chief inspector concerning defective couplers on freight cars of the country. Ten inspectors employed by the commission up to June 30, 1902, examined 161,371 cars, as against 98,624 examined by a smaller force during the year previous. Defects were found in 42,718, as compared with 19,462 the previous year, the percentage found defective being 26.47, as against 19.73 in the year preceding. An improvement noted is the increased use of solid knuckles and diminution in the number of uncoupling rods incorrectly applied.

While the use of power brakes on freight trains has improved during the year, as in the case of the automatic coupler, there is still need of further progress in this respect. The percentage of air-braked cars used in trains is greater than a year ago, but in a great many trains it is still too small, and the use of hand brakes as the main or only means of regulating the speed on steep descending grades continues on some of the important roads. The letter of the statute is complied with when the engineman controls the brakes on enough cars in the train to control it and stop it within a reasonable distance. This may be from 25 to 75 per cent. of the cars, according to the condition of the brakes, the weight of the cars braked or unbraked, and their lading, and the gradients of the line.

The statute, however, contemplates—in spirit at least—the general use of power brakes on all the cars of every train. This full use is the prevailing practice on railroads in the West, and is in accordance with the teachings of those who are expert in the management of air brakes. The great increase in the volume of freight traffic on nearly all railroads, which was noted a year ago, has continued unabated, and the burdens which this pressure of work has put upon officers and employes in the freight train departments have hindered them from giving due attention to brakes. The commission finds it impossible, therefore, to make any definite statement as to the improvement in the general situation.

To promote more general compliances with the spirit of the safety-appliance law in the use of air brakes, the commission recommends passage of an act forbidding the running of trains in which less than one-half of the cars are equipped with power brakes, in operative condition, and suitably connected to the engine, and empowering the commission to issue a general order or orders requiring the use of power brakes on more than 50 per cent. of the cars in a train as and whenever it shall find such increased use to be practicable; and also permitting the commission, in the case of any particular road, after hearing and investigation, to permit, for a specific period, the running of trains with power brakes in use on less than 50 per cent. of the cars therein. Such orders should be authorized to prevent any possible hardship, due to unforeseen exigencies.

This recommendation is in accordance with facts and interviews brought out at hearings before the Senate and House committees at the last session of Congress. The commission further recom-

*From advance sheets of annual report of Interstate Commerce Commission.

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mends that the provisions relating to automatic couplers, grab irons and height of drawbars be made to apply to all locomotive tenders, cars and similar vehicles, both those used in interstate commerce and those in connection therewith, except those trains, cars and locomotives exempt under the present law; and that the size, length and location of grab irons shall be prescribed by the commission.

The status of railway employes injured while coupling and uncoupling cars on which the couplers are defective is referred to as having been considered in a decision rendered during the year; and another decision is mentioned involving the liability of a railway company for personal injuries due to negligence of its employes.

In the matter of collisions and derailments, the statistics gathered under the law of 1901 constitute the first authentic record of the kind which has ever been published relating to railroads of the whole country. The figures compiled by the commission for the year ended June 30, 1902, show approximately 2.5 collisions and 1.8 derailments per 100 miles of railroad for the year; and the losses by accidents, not including damage to freight or sums paid to persons for bodily injuries or on account of death, average, roughly, $3,800 per 100 miles of road annually.

The enforcement of regulations, the neglect or violation of which has caused these collisions, has long been the subject of extended discussion among railroad officers, but such discussions have not resulted in marked improvement, except as they have led to the adoption of the block system. This system is treated at length in the report and highly commended.

*Trains Parting.**

While investigating the parting of freight trains, the causes, and remedies for same, the following are worthy of consideration:

1. To the introduction of the heavy type engines, and the hauling of an increased number of cars without any material change in the construction of the majority of same.

2. To the giving away of draft rigging and the pulling out of the ends of same on the older types on account of the excessive drawbar pull.

3. On account of the design of the older types of automatic couplers, they not conforming to the contour lines as adopted as standard by the Master Car Builders' Association; also to the faulty distribution of metal.

4. Due to wear and failure of coupler parts, common among which are knuckle lugs, knuckle pins, coupler body and guard arm, knuckles and locking pins, creeping locks and short uncoupling chains. (Record of one road shows 65 per cent. of trains parting due to the failure of knuckle pins, which break about the middle, the lower half dropping out, and putting all the strain on the top lug which fails, and is the second highest of coupler failures.)

5. The old design of draft rigging under cars built a number of years ago being too weak, the single spring attachment having only 19,000 pounds capacity and the double spring 40,000 pounds. These springs will not stand the service. This part of the car should be reinforced to compare with the design on the modern cars of today. The conditions under which we are operating today demonstrate that the only design of draft rigging we have in service capable of standing this strain is the friction draft rigging, of which you will find a very small percentage of the cars equipped; in fact, a large majority of the cars have the single draft rigging.

6. Due to the slipping of engines, caused by overload or the conditions of the rail.

7. To the release of brakes at slow speed without the proper resistance on the engine, or head-end cars.

8. To defective triple valves, known as "kickers" or sticky triples, when the same are located on the rear end of train.

9. To insufficient main reservoir capacity in not bringing about a more uniform release of brakes.

10. To the negligence of engineers in not manipulating the brake valve properly.

11. To the rough handling in starting of trains, the switching of cars in yards and the taking on and leaving off of same on long trains where done on the rear end of train.

REMEDIES.

1. As the heavy type of engines have come to stay, it is essential for the car department to meet this emergency by bringing the condition of the cars to a point to be able to withstand the shocks and strains of these heavy engines. When

*Report of a committee appointed by the Car Foremen's Association of Scranton.

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we consider that cars built twelve years ago to withstand shocks from fifty to sixty-ton engines in trains not exceeding thirty cars (loads) are today being handled with engines weighing from ninety to 100 tons in trains consisting of from seventy-five to eighty-five loads, we do not wonder at the number of breaks-in-two, and, as previously stated, the strengthening of cars and the introduction of greater capacity cars (the older types being 40,000 and 50,000 pounds), which will necessarily shorten the train, with modern appliances will overcome the first cause.

2. The large majority of failures in draft riggings we have discovered has been in the older type with the single spring draft gear. We would recommend that this part of the car be reinforced in line with the present friction draft gear.

3. We would recommend that the railroad companies insist that all couplers purchased shall conform to the Master Car Builders' contour lines, and that the manufacturers redesign their coupler so that the distribution of metal shall be such that there will be no excessive strains. Also that the link pin hole in knuckle should be made smaller, so that the wall between hole and wearing face of knuckle will not crush in, thereby increasing the distance from the face of knuckle to the face of coupler. Also that the manufacturers should agree on one size knuckle pin, thereby saving the railway companies from carrying a large stock of the different sizes on hand.

4. These conditions can best be overcome by a little more care in handling cars while switching in yards, and insisting on great care while inspecting these cars to replace them before they fail.

This will necessitate either more time for inspection or the addition of more inspectors on the trains, so that no cars shall leave a terminal without proper inspection. At present it is almost impossible to hold trains long enough for proper inspection, causing a congestion in yard terminals, and we think it necessary to increase the number of inspectors; this to be governed by the time allowed on inspection of trains.

5. This is covered by the conditions given above in No. 1.

6. This is a question for the superintendents to consider in their tonnage rating of engines, in which we think they should take into consideration the conditions of weather and the physical conditions of their respective divisions. It has also come to our notice that the quality of sand that is being used is such that it turns into loam and the engine will slip on it. A better quality of sand will greatly reduce the engines slipping, and the proper clamping of sand pipes so that the sand will be spread on the rail. In a number of instances you will find that sand pipes are too short or where coupled with a union connection are loose and swing inside or outside the rail; in either instance the sand is not deposited on the rail and eventually the engine slips, causing the train to bunch, and when the drivers catch the rail again break a knuckle.

7. We would recommend that all engines in road service be equipped with straight air, or, if this does not meet with the approval of officials, it will be necessary for the superintendents to issue bulletins to trainmen requiring that where slow-downs are made, due to reconstruction of bridges or any other designated slow-down points where the speed is not to exceed eight miles per hour, that the train be brought to a full stop or have the trainmen set up about six retainers on the head end of train, or set at least from four to six hand brakes. The application of straight air on the locomotive is the best method of overcoming breaks-in-two from this cause, as your committee knows that conditions will arise when the attention of the head brakeman will be required at some other part of the train than on the head cars, when the release of train brakes will be necessary, and the engineer being permanently located in the right side of the cab while handling the engine can more readily with one movement of the hand apply the brake than the brakeman can turn up retainers or set a few hand brakes. Until this is done either the retainers or hand brakes must be used. Trainmen will argue that if hand brakes are used that an application of the air will release them. This is not so, as not more than a 10-pound reduction is used to slow down a train of fifty or seventy air brake cars, and only twenty-three pounds pressure developed in the brake cylinder. Any brakeman will develop a greater power than this without the use of a brake stick on account of the hand brake rod being connected from five to seven inches from the push rod. The retainer will give good results if the brake cylinder packing leathers are in good condition and do not leak, and the retainer pipe connections are tight. Any leakage in these parts weakens the re-

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sistance and bad results may come therefrom.

8. This can easily be overcome if all private lines and all railroad companies will live up to the rules of the Master Car Builders' Association on cleaning triples and cylinders on cars. We note recently that this is being done more so than in the past, due to the interest manifested in this particular line of work, and by having competent men to do the repairing. Your committee has known of three instances where repaired triples just applied to cars had tight fitting triple piston packing rings, which caused this form of trouble, and it is not only essential that the triples be cleaned and repaired, but that they must be tested before being put into service, especially when a packing ring has been renewed.

9. To overcome this, we would recommend that for trains of fifty or more cars not less than 1,000 cubic inches main reservoir capacity for each car handled. It has come to our notice that engines equipped with main reservoirs to meet the requirement of eight or ten years ago are in service at present handling long trains and no effort has been made to increase the main reservoir capacity, and while they were capable of taking care of the trains in years past, they are certainly inadequate for the trains of today. Where the lighter types of engines are in use they are invariably used in doubleheading, and, as only one engine can control the brakes, we find these engines equipped with reservoirs whose capacity does not exceed 20,000 cubic inches, handling trains of fifty or more cars. These engines should have not less than 40,000 to 50,000 cubic inches main reservoir capacity, or be taken out of such service and placed where they will not be required to handle more than thirty cars.

10. If enginemen on releasing the brakes on long trains would not place the brake valve handle in release position unless they had the full amount of excess pressure in the main reservoir, and that after placing the handle in full release would allow it to remain there not less than forty seconds, as the volume of air from main reservoir must pass through a restricted passage in the brake valve, this passage remaining the same regardless of the number of cars in train, it will require at least this amount of time for the trainpipe and main reservoir pressures to equalize, and also prevent the brakes on the head cars from sticking, which will occur if the brake valve handle is returned to running position too soon.

11. This can be overcome if engineers would display good judgment by first using sand to give a good rail, and by opening the throttle gradually until the slack of train is taken up and continue the use of sand to a speed of six miles per hour. In starting the train the engineman should give his whole attention to stretching the train before looking toward the rear end for signals. In many cases the engine slips while engineman is leaning out of the cab window looking for signal, and before he has time to shut off the steam the train has parted. The switching of cars in yards which actually start defects that result in serious damage after trains have left their terminals can be modified if the hand brake is applied after the kick has been made by switching engine, having the switchman ride the car to prevent any severe shock. At present in a majority of yards where considerable switching is done there are no brakes applied, the switchman simply holds the uncoupling lever, the kick is made and the damage to coupler and draft rigging follows. Where cars are taken on or left off long trains this should be avoided as much as possible. This work should be done by what is known as locals. One of your committee while riding long trains found that the amount of time consumed to pick up a car from a station switch on the rear end of an eighty-five car train was forty-five minutes. This may seem unusually long, but when you consider that the train must be handled carefully, the engineman being governed by signal from the brakeman, it being impossible for him to see the cars he is to pick up on the rear end, then pulling out of the switch and backing train to get the caboose, getting the train started without causing it to part, this amount of time is easily taken up.

While we have not enumerated bursted airhose, as a cause for trains parting, there is a condition under which it would cause a train to part; where trains are descending slight grades or sags, and the slack is in, should a hose burst on the rear end of train, it would have a tendency to cause the train to part. The bursting of a hose on the rear end would naturally cause the brakes to begin to apply from that end, and as the last brake to apply would be on the engine, it would give time for the slack to run out, causing the train to part. By reversing this condition, should the hose burst on the head end of train, the slack being in, no damage would result from

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the bursted hose; on the other hand, if while using steam a hose should burst, the slack being all out, if hose bursted on rear end of train, would cause no damage, as only a service application would take place. If hose bursted on the head end of train while using steam, it would be equal to the engineer applying the brake in service application and no serious results would occur. When a hose bursts it usually starts a leak before giving out entirely, and this is supplied from the main reservoir, on account of the engineer's brake valve handle being in running position, the air escaping from the trainpipe does not do so quickly enough to cause an emergency application.

Ends and Ends

Notes.—It is said that an effort is being made by the general office clerks of the Santa Fe System to form a union. In addition to asking for increased wages, a request is made for an eight-hour work day and overtime for anything in excess of eight hours.

It is said that the B. & O. has paid another company $7,000 for an option on seven locomotives being built by the Baldwin Works. This is prosperity for sure!

The line of railway has been completed which unites Havana and Santiago. This road traverses almost the entire length of the Island of Cuba, and at no point is far from either coast. It is expected that as a result an immense agricultural district will be developed.

In a collision which recently occurred on the Burlington Railroad, near Dayton's bluff, St. Paul, Minn., one of the engineers who found himself pinned beneath the wreckage of his engine by his foot, deliberately took out his pocket knife and amputated the foot at the ankle, after which he crawled away. Shortly after the tender of the engine settled down in the exact spot he had occupied.

Must Have No Side Lines.—It used to be common for some railroad men who were more thrifty than others and who were fortunate enough to have laid by a snug little sum from their earnings to invest their savings in some business, placing some one in charge of same while they continued to follow their vocation with the railroad company.

This is all changed, and those employes who have interests in groceries, coal yards, saloons, etc., must decide to dispose of those interests or leave the service of the company. A prominent eastern railroad company takes the position that the time of the employes all belongs to the company, and that in the train service especially if trainmen have their minds burdened with outside business cares they are apt to neglect the business of the company.

Chain-Ganging to Go.—The Livingston, Mont., Enterprise says: "It is intimated that orders have been received from St. Paul to discontinue what is termed 'chain-ganging,' the practice of assigning engineers to any engine that comes along. If the report proves correct, and the engineers again have the same engine all the time, they will be much better pleased with the plan."

The Grand Trunk on the Pacific Coast.—Westward through northern Ontario, Manitoba, Saskatchewan, Alberta and British Columbia, to a point on the Pacific coast, the Grand Trunk Railway proposes to build another great transcontinental line. The Rocky Mountains will be crossed either by the canyon of the Peace River or that of the Pine River. The western terminus will probably be at Port Simpson or at Butte Inlet. Port Simpson is the northernmost port of importance on the British Pacific coast line, and is just across Portland Canal from the southern part of Alaska. Butte Inlet is much farther south. It is estimated that the cost of this undertaking will be near $100,000,000, but it is expected that the great agricultural and mining country developed, and the share of Pacific trade obtained, will make the investment profitable.

An "Operating" Expense.—European railways, at least those railways in countries with Kings, are subjected to an expense not incurred by railways on this side of the Atlantic. The London and North Western, Great Eastern, Great West-

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ern, and London, Brighton and South Coast Railways each have provided and maintain "Royal" trains, which are marvels of grandeur and elegance. These trains are used only by members of the royal family, and perhaps not to exceed three or four times during an entire year. Railway companies use as an excuse for low wages in Great Britain that after "operating" expenses are deducted from earnings there is but little left.

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Switchmen's Strike.—According to press reports, after a tie-up of several days in the freight business of the Iowa Central Railroad, caused by a strike of the switchmen in the Marshalltown, Iowa, yards, an agreement was reached between the company and the men. The advance granted by the company is said to place the men practically on the same footing with switchmen of other roads.

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Heavy-Weights Wanted.—The Seymour, Ind., Republican of December 26, 1902, says: "The Baltimore & Ohio Southwestern has experienced considerable difficulty in obtaining strong young men to act as firemen on the heavy compound freight engines. Tempting wages are offered applicants, but the young men try it for one trip and then quit on account of the hard work."

The Ashland (Ky.) Independent of December 10, 1902, has the following: "The C. & O. Railroad is increasing its number of firemen. During the past week ten new men have been employed on the Hinton Division. Weight is now one of the main qualifications, none being employed whose avoirdupois is less than one hundred and sixty pounds."

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English, as Spoken in Britain.—Railway technical names used on British railways are hardly intelligible to railway men in the United States and Canada. The following account of a railway accident is taken from London Engineering, and is submitted for translation:

On the day named the 10:50 a. m. passenger train from Chesterfield to Sheffield ran off the main line into a loop at some facing points, and collided with some wagons standing on the loop. The accident arose entirely from the signalman's inadvertence. During some shunting operations the points had been set for the loop, and this setting automatically locked the signals controlling the main line. The signalman, however, forgot the position of his points, and though he noticed that one of the levers in his cabin was "over," he assumed it was the lever working the facing-point lock. Finding he could not lower the signals, he assumed the transmitting gear had jammed in some way, and on the passenger train approaching, signalled it forward from his cabin by means of a green flag in opposition to the signals. The driver, who, finding the distant signal against him, had reduced speed, turned on steam again on receiving the flag signal, and was running at about twenty-five miles an hour, when he perceived that the road was wrongly set. He immediately shut off steam and applied his brakes, but could not avoid the collision, though he greatly reduced its force.

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Pension Schemes.—The following is taken from exchanges: A pension system has been adopted on the San Antonio and Arkansas Pass Railroad, effective January 1, 1903.

A pension system was to be established on the line of the Oregon Railroad and Navigation Company, January 1, 1903.

A "relief" department is said to have been established on the Cleveland, Akron and Columbus Railroad, similar to that on the Pennsylvania Lines west of Pittsburg.

It is said that the employes of that portion of the old Columbus, Sandusky and Hocking Railroad belonging to the Pennsylvania Lines west of Pittsburg, are now eligible to membership in the relief department.

A pension system was expected to be put in operation by the Union Pacific Railroad Company on January 1, 1903.

The Canadian Pacific Railroad Company is said to have adopted a pension system.

It is reported that a pension system will be enforced by the Southern Pacific Railroad Company.

It is said that according to the new system prevailing on the Illinois Central Railroad, Mr. J. W. Boyer, the oldest engineer on the roll, has been retired, and will draw a pension of $21 per month for the remainder of his life. He is said to be the first engineer in the service of the company to receive a pension.

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Insurance for Railroad Men.—From the Oakland (Cal.) Tribune it is learned that the following circular has been issued by the Southern Pacific Railroad Company:

To encourage and enable employes to provide a fund which shall be promptly

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available for themselves or their families in the event of injury or death by accident, an exclusive arrangement has been made with the Continental Casualty Company of Chicago, Ill., which affords the opportunity of being so insured at a materially reduced cost, the same to become effective January 1, 1903. Deduction upon the pay-roll for premiums on policies written after that date will be made in favor of the Continental Casualty Company only.

Employes desiring to insure with other companies may do so, but they must make their own arrangement for the payment of premiums outside of the company's accounts.

This company looks with favor upon its employes carrying accident insurance, especially those whose duties expose them to danger. The arrangements made with the company named above is to further the interests of employes and to induce them to more generally avail themselves, at a moderate cost, of the advantages of insurance. It is hoped that the result will justify the effort that has been made in this direction.

(Signed.) J. KRUTTSCHNITT,
Fourth Vice-President and General Manager.

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Experienced Men Not Wanted.—From the Dubuque (Iowa) Telegraph-Herald of December 29, 1902, it is learned that J. C. Dailey, superintendent of the Freeport Division of the Illinois Central, has issued the following circular to the agents in his territory:

In order to be in a position to secure men from the towns and country along our line for service in various positions in the transportation department, and for positions as firemen in the machinery department, it is desired that agents ascertain the names of young men at their stations or vicinity who are ambitious to enter railroad service, and furnish a list of their names and addresses with a brief statement of the person, giving age, occupation, position desired, with an opinion as to their fitness for the line of work desired.

After such a list has been received, the trainmaster or master mechanic will try to see such applicants and have a personal talk with them. Additional lists should be furnished from time to time, say every three months. The idea is to have a list of available men we can draw on from time to time as needed.

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Waited to be "Rescued."—As a freight train on the Wisconsin Central Railroad was running between Byron and Hamilton, early in the morning of January 1, 1903, says an exchange, the engineer thought a brake shoe was rubbing, or else there was a hot box, as the engine did not seem to be running smoothly. Stepping out in the gangway to investigate, his foot slipped on the icy step and off he went. By the time he had rolled down the embankment and sat up to look around, the rear of the train was just passing him. His shouts were not heard by the men in the caboose, and he had the satisfaction of seeing the lights of his train disappear in the distance. He received no injury from his fall. The train proceeded on to Fond du Lac, where the loss of the engineer was reported, and an engine was sent out to pick him up. Upon arriving at Hamilton he was found seated on a flat car waiting to be "rescued."

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Railroad Legislation.—The Indianapolis News of December 19, 1902, says: "The railway employes' organizations are going to urge on the next meeting of the Legislature the passage of a bill to provide an inspection department for trains. The bill will provide for an inspector and two deputies, whose duties it shall be to see that the rolling stock of the companies complies fully with the Indiana safety laws. The inspector and his deputies are to be appointed by the Governor. The railway employes will fight the bill providing for garnishment of wages, which the grocers are preparing to present."

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Locomotive Boiler Explosion.—The Tucson (Ariz.) Star of December 16, 1902, has the following: "The other night as engine No. 2284, which pulls the Southern Pacific passenger, was being put in order at Lordsburg to come out on the run, it blew up and caused considerable damage. An eye-witness described it as follows: 'Hostler Woods heard the engine piping off steam and got up into the cab to see if she carried plenty of water. Just as he put his hands on the cocks in the water gauge the explosion occurred. The engine reared up just like a bucking horse and then fell with its nose dug in the ground. The whole end of the roundhouse was torn down and considerable damage was done to adjoining buildings. Luckily, Hostler Woods met with only severe scalds and is now resting easily. The front end of the engine was blown about five hundred yards down the track, and there was brick and scrap iron scattered all over the yards. The force of the concussion was strong enough to put out every light in Lordsburg. A great hole was dug in the ground.'"

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Railway Earnings.—The railroad gross earnings for the month of November (compiled by The Chronicle) show 7 per cent. gain over November, 1901. This is for 90,000 miles of road. For six years, now, there has been a November gain each year over the year before. Last year it was 12½ per cent. For eight years in succession the gross earnings for the eleven months to November 30th, have shown gains, but for the month November, 1896, showed a decrease. The steady prosperity of the railroads since 1895 has been used with consistent wisdom by the managers of those properties to put them into condition, physical and financial, to stand heavy weather, and we should think it quite safe to say that the railroads of the country were never before so strong as they are today.—Railroad Gazette.

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Passes on Government Railways.—At first the railways of Australia, which are owned by the government, were very liberal to employes in supplying transportation, but now a policy has been adopted that will not only result in wage-reductions, but also in the withdrawal of the pass privilege. The Railway Standard of Melbourne says:

Before the first wave of retrenchment came some years ago, Victorian Railway employes were entitled to one free pass per month, and to an annual all-lines pass for wife and three children at leave time. They emerged from that wave retaining the annual all-lines pass, but with the monthly pass taken from them, receiving in exchange, however, the right to take out privilege tickets at quarter-fare for themselves and their families as often as they chose. There was common sense in this reform; the men appreciated it; the railways gained by it, for no journey was absolutely unproductive, and the employes were encouraged to make many journeys by the liberal concession granted to them. The revenue from these privilege tickets amounted to between £6,000 and £7,000 per year, which does not satisfy Mr. Bent, and, grasping at the shadow of a revenue doubled or trebled by raising the fares to full rates, he will assuredly lose to the railways a very nutritive bone. With the privilege tickets taken away, and with wages reduced, the men simply will not travel unless they can not help it, and the revenue will suffer. A reforming Minister, full of zeal, has no time to study such unimportant things as the example of railway companies elsewhere which are quite as anxious to make money as he is, else he might have been struck by the fact that these privilege tickets are issued on English lines. They were at first charged at half-rates; the resulting revenue encouraged the companies to greater liberality, and the quarter-rate gave still better returns than the half. But Victoria is to be a law unto itself, so the men and the railways must suffer.

Then we have the matter of periodical tickets. Formerly the railway man got them at half-rates—a concession which was only fair, since in many cases he can not avoid traveling expenses by living close to his work, being subject to frequent removal. Now he has to pay in full just to make him feel elated by the distinction of being differently treated to every other employe of any carrying concern in the world.

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Locomotive Mechanism and Engineering.—This well-known technical book, the author of which is Mr. H. C. Reagan, has just been issued in its fourth edition, enlarged to 565 pages and index and containing 309 illustrations. The publishers are John Wiley & Sons, New York City, and the price is $2.50. The author says in his preface to this fourth edition:

This edition describes and illustrates by means of photographs and detailed drawings the latest improvements in locomotive practice. This includes the latest types of compound and single-expansion locomotives, and treats of many improvements in fire-boxes and boiler construction.

The subjects of liquid fuel and oil-burning engines are carefully considered, as well as piston-valve engines and track-sanding apparatus.

The author also discusses the different methods of operating valve motion for compound locomotive engines, and takes up the questions of metallic packing and of air-pumps.

The new matter is intended to put the reader in touch with the very latest and highest type of locomotive and its details.

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The Modern Air Pump.—Railway and locomotive engineering journals are sounding the praises of the 11-inch air pump and various stories are told of the powers of the new invention, says the Houston Post. The marked superiority of the 9½-inch pump over the 8-inch, when the former came into the air brake field several years ago, was greatly pleasing to railroad men in general. Particularly was the feature of greater capacity valued, as air-braked freight trains were then beginning to become quite long. A tale is being told of an engineer on the Southern Pacific who failed to appreciate greater capacity and found a grievance against the 9½-inch pump which he reported on the work book as follows: "The new 9½-inch pump jams more wind than three 8-inch pumps. But take it off. It leaves the air on my side of the engine so thin

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and makes my asthma so bad I can't breathe. Put it on the left-hand side or take the —— thing off altogether."

Now that the 11-inch pump has been applied to some few engines, a story has been found for it. A Santa Fe engineer had an engine with a 9½-inch pump, and was coupled to eighty cars of air whose train line was leaking a little worse than usual. He had been pumping about ten minutes and had gotten but a few pounds. His pump was tearing along like a race horse. Beside him, on the next track, was a new Schenectady engine with an 11-inch pump and coupled to eighty-six air cars with train line in fairly good condition. With a dull "choom! choom! choom!" as leisurely and lazily as the step of a railroad tramp on a hot day, the 11-inch stroked for about five minutes and then shut down with ninety to seventy in the main reservoir and train line, respectively. The Santa Fe engineer looked fiercely at the 11-inch pump resting quietly after finishing its work, and then turned round to his 9½-inch, which was still racing and was smoking at the packing nuts. Suddenly a thought struck him and he ran forward and called to the switchman: "Hey! there—you, Jim! Throw that switch and let me pull up a few car lengths! Let me get away from this —— 11-inch pump. It has sucked up all the air around here and I can't get any. Let me pull up to where it is thicker and fresh! Hang the 11-inch pump—when you haven't got it."

* * *

Didn't Like the Road.—Superintendent—So you want a job as fireman, eh?

Applicant—Yes, sir.

Superintendent—I'll have to ask you a few questions. How far is it to the north pole?

Applicant—Gee, whiz! If you're going to put me on that line, I don't want the job.—Indianapolis Trade Journal.

* * *

Starving Cattle.—While "prosperity" has brought about a shortage of rolling stock in the United States and Canada, a distressing drought has produced a similar result in Australia. The New South Wales Railway Budget says that "Owing to the very heavy traffic in starving stock, particularly in the Southern district, a shortage of stock trucks is being experienced, and in this connection the Railway Commissioners have stated that the department is working at high pressure to cope with the demands. In addition to dealing with the ordinary every-day demand in carrying stock for market, export, etc., the department has to face a very heavy call for trucks in connection with the removal of starving stock, and at present 50 per cent. of the stock wagons are being utilized in that service. In their anxiety to save as much stock as possible, the commissioners are utilizing the ordinary goods wagons where it can be done, each carrying one deck of sheep. Not only are the wagons fully utilized, but there is the difficulty of finding engines to run all the trains required, as the starving stock traffic is, as a rule, long-distance traffic without compensating back loading. The commissioners are also, in order to give the greatest possible relief, and in view of the matter being one of necessity, working in the far district on Sundays."

* * *

Increased Wages.—Based upon information obtained from press reports the following increases in wages are reported:

Engineers and firemen on the Wisconsin Central Railroad have been granted an advance in pay amounting to from 5 to 8 per cent. over the schedule of last year. Among other concessions granted were the following: Firemen in freight service will not be required to clean the engines outside the cab; engines are to be pooled, which is expected to relieve the men from having to wait so long for the return of the engines, after having laid off and the engines having been sent out with extra crews; appeals from discipline are to be filed within thirty days from date of same.

Engineers, firemen, conductors, trainmen and station employes of the Alabama Great Southern Railroad are said to have had their wages increased from 5 to 10 per cent., effective December 1, 1902.

Employes of the Atlantic Coast Line Railroad who were making less than $100 per month are given a 10 per cent. increase in wages, beginning January 1, 1903.

The Santa Fe switchmen have been granted an increase in pay at Temple, Texas, corresponding with the rate of pay for same service in Chicago.

Engineers on the big engines of the Great Northern Railroad, pulling the coast trains, have had their wages increased from $4 per one hundred miles to $4.25.

What is said to be the largest amount paid by any railroad company in the United States in wages to its passenger

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conductors is that of the Bisbee Railroad, which has recently raised the salaries of the passenger conductors to $140 per month.

Announcement has been made of an increase in wages by the Delaware, Lackawanna and Western Railroad.

It is said that the wage proposition presented by the Erie Railroad Company to the Brotherhood of Railroad Trainmen for the Youngstown, Ohio, yards has been accepted by them.

The Lake Shore and Michigan Southern Railroad has advanced the pay of yardmasters on the entire system, the advances ranging from $5 to $15 per month.

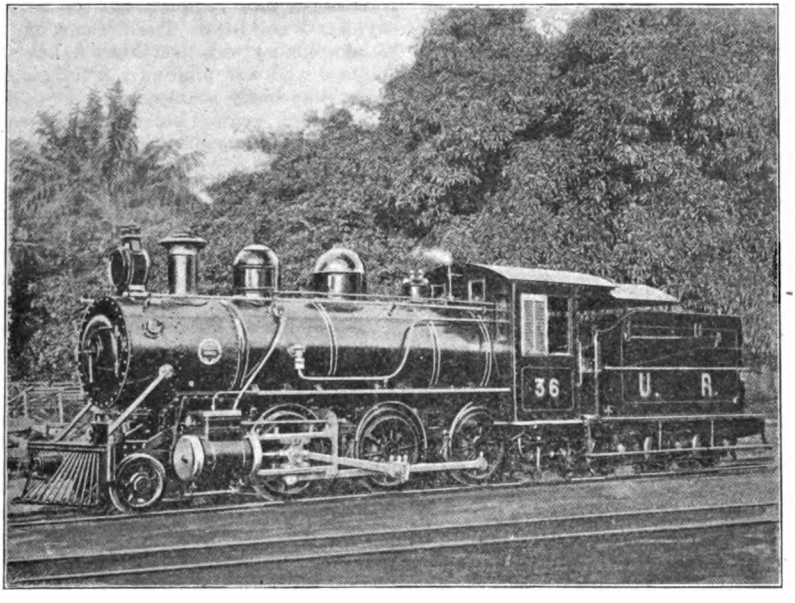
A general increase in salaries, averaging about 5 per cent., has been granted the trainmen on the Southern Railroad. Engine crews will receive from 2 to 8 per cent., and conductors and brakemen in a few cases as much as 10 per cent.

All employes of the Grand Rapids and Indiana Railroad receiving less than $200 per month had their wages increased the first of the year.

A new schedule of pay is announced for the engineers of the Southern Pacific Railroad, effective January 1, 1903. Under the new schedule, two rates of pay are given to passenger engineers, $3.65 to $3.92 per hundred miles, according to the size of engine. Among other concessions they are granted overtime for terminal and road delays.

An increase of about 8 per cent. in wages has been granted by the Chicago and Northwestern Railroad to its engineers and firemen. The firemen hail with delight the abolition of the rule requiring them to clean the freight engines.

The Chicago, Milwaukee and St. Paul Railroad has increased the wages of engineers and firemen about 10 per cent., and has relieved the firemen from cleaning pooled engines, or freight engines outside of the cab, and the blacking of front ends.



AN AMERICAN LOCOMOTIVE IN AFRICA

A Baldwin engine in the service of the Uganda Railway

The Chicago and Alton Railroad has announced an increase of pay to operators, agents and other employes, amounting to 10 per cent.

An increase of 7 per cent. has been added to the wages of the employes of the Buffalo, Rochester and Pittsburg Railroad, effective December 1, 1902.

The Jersey Central Railroad Company has announced a general advance of 10 per cent. in wages, dating from December 1, 1902.

Engineers, firemen, conductors, trainmen, baggagemen and switchmen of the Cincinnati Southern Railroad, as well as those on the Queen and Crescent System,

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have been granted an increase of 10 per cent. in wages.

Firemen on the Boston and Albany division of the New York Central Railroad have been granted an advance in wages.

The Ann Arbor Railroad Company has announced a general advance in wages, amounting to from 5 to 7 per cent., of all employes of the system.

A new schedule of wages was granted the engine and train crews of the Wabash Railroad, and applies to all men in those branches of the service, dating from December 1, 1902.

* * *

Railroad Accidents.—Exchanges report wrecks to have occurred recently as follows:

The engine of the Stockton "Flyer" plowed into the rear of the "Owl" train at Byron, on the Southern Pacific Railroad, on the night of December 20, 1902, resulting in the injury of twenty-six persons and several deaths. The accident is said to have been caused by the "Owl" train stopping on account of a leaky flue, intending to pick up a freight engine to relieve them. The flagman's light was seen by the engineer of the following train and the brakes were applied, but for some reason it was impossible to stop the train in time to avoid the collision.

A passenger train on the Keokuk and Des Moines branch of the Rock Island, while entering Des Moines on the afternoon of December 25, 1902, was struck on the crossing of the Great Western by a switch engine, which backed into the passenger train. The passenger engine was turned over and the passengers received a severe shaking up, but no fatalities are reported.

A passenger train on the Pennsylvania Railroad collided with a freight train at Fort Hill, Pa., December 24, 1902. The engineer and fireman of one of the trains received serious injuries and were taken to the hospital at Philadelphia, but the passengers escaped with slight injuries.

An express passenger train on the Chesapeake and Ohio Railroad was derailed at Whitcomb, W. Va., by a landslide of rock. The engineer and fireman were killed, the baggageman was hurt slightly, but the postal clerks escaped injury. No injuries to passengers are reported.

An engine bumped into the rear of a passenger train at Baden Station, on the Wabash Railroad. The fireman on the passenger engine was thrown against the boiler head, breaking three of his ribs. Three passengers in the rear coach are reported slightly injured.

The south-bound "Limited" on the Alabama Great Southern Railroad was wrecked near Moundville, Ala., December 17, 1902, in which the express messenger was killed, and the fireman and two mail clerks were badly injured.

A Santa Fe freight train running over the Rio Grande Division of the Frisco, endeavored to reach Dublin, Texas, for a westbound passenger train. Finding it impossible to do so, the engine was uncoupled from the freight train and sent forward with a flag, but met the passenger train when rounding a sharp curve. The engineer and fireman of the passenger train escaped by jumping, but the freight engineer was killed. The fireman of the freight engine was not injured, but the employe who was piloting the freight engineer was badly scalded.

A helper engine on the Cincinnati, Hamilton and Dayton Railroad, near Liberty, Ind., got beyond the control of the engineer, December 22, 1902, and made two wild runs between that place and Connersville, resulting in the wrecking of two freight trains and four engines, the death of two men and injury to two others.

In a collision between a freight train and a light engine on the Northwestern Road, near Hurley, Wis., December 10, 1902, both engines were demolished and three men seriously injured. One fireman was putting coal into the firebox at the time of the collision and his head entered the firebox door, and he received frightful burns, while the other fireman was buried in the wreck and received cuts and bruises. The conductor of the light engine was slightly injured.

A double-header freight train on the Philadelphia and Erie Railroad collided with a car of lumber, which had run out of a siding and down a steep grade, near Wetmore, Pa., December 19, 1902. Both engineers were killed, and one fireman and a brakeman were injured.

A fast mail train of the Chicago and Northwestern Railroad collided with a switch engine in the yards at Chicago, early in the morning of December 26, 1902, resulting in the possibly fatal injuries of both engine crews. None others are reported as being seriously injured.

A fast passenger train on the Illinois Central Railroad collided with a work train at Caneyville, eighty-four miles from Louisville, Ky., on the morning of December 27, 1902. One engine was demolished and one engine and three cars

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were derailed. The engineer and fireman of the work train, and the fireman of the passenger train were killed, while the engineer of the passenger train was badly bruised and cut.

A passenger train on the Cleveland and Pittsburg Railroad jumped the track at Brady's Lake, Ohio., December 27, 1902, tearing up the track for 150 feet. The baggageman and two porters are said to have received slight injuries.

Two freight trains on the Missouri Pacific Railroad collided head-on on the night of December 26, 1902, near Dodson. Both engineers were badly injured, one brakeman was killed, and both firemen and one brakeman were slightly injured.

In a collision between two freight trains on the New York, Susquehanna and Western Railroad, December 19, 1902, at Little Ferry Junction, N. J., both firemen were killed and one engineer was injured.

A freight train on the Chicago and Northwestern Railroad backed into the engine of a Milwaukee passenger train at a crossing, December 16, 1902. The passenger engineer was killed, and his fireman was slightly injured.

A passenger train on the Norfolk and Western Railroad struck a curve, where an angle bar had been removed, December 28, 1902, which caused the engine and two front coaches to be thrown down an embankment, and killing the engineer.

Through a misunderstanding of orders, a head-on collision occurred on the Pennsylvania Railroad between a passenger train and a freight train on the night of December 30, 1902, resulting in both engines being demolished, and badly wrecking the express, baggage and smoking cars. The passenger engineer was killed, the freight engineer and fireman probably fatally injured, the passenger fireman seriously injured, the express messenger fatally injured, besides minor injuries to some of the passengers.

Through a turned switch, supposedly by tramps, as the switch lock had been broken, a freight train on the Cincinnati, Indianapolis and Louisville Railroad was thrown in the ditch at Quincy, Ind., December 30, 1902, and the engineer, fireman and one brakeman were killed.

A wrecking train on the Hannibal and St. Joseph Railroad, while on its way to Bucklin to replace some cars which were off the track, went through a bridge spanning Yellow Creek, December 13, 1902, resulting in the death of the fireman and the serious injury of the conductor and roadmaster.

Two light engines, coupled together, which were sent out to help an incoming freight train on the Grand Trunk Railroad, on the night of December 25, 1902, collided with the freight train at Renton. One engineer and fireman were instantly killed, and one engineer and fireman were fatally injured.

In a collision between a freight train and a coal train on the Colorado Southern Railroad, on the night of December 24, 1902, both engineers and firemen, two brakemen, and two men riding as passengers are reported killed.

The Pacific Express and a freight train on the Sarnia branch of the Grand Trunk Railroad met in collision at Wanstead, on the night of December 26, 1902, the estimate of fatalities being thirty killed and over thirty-five injured.

On the night of December 24, 1902, by the projecting of a heavy freight engine from a siding onto the main track at Atlanta, near Bloomington, Ill., on the Chicago and Alton Railroad, a bad wreck was caused by a passenger train running into it. The force of the collision threw the passenger engine thirty feet to one side and into an embankment. No fatalities are reported, but there were several serious and minor injuries.

A head-on collision between two freight trains on the Chicago, Peoria and St. Louis Railroad, on the night of December 25, 1902, resulted in the death of one fireman, serious injury to both engineers, and other members of the crews receiving painful bruises.

An incoming freight train on the Burlington Railroad crashed into another train standing in the yard at Table Rock, Neb., on the night of December 16, 1902. The fireman of the standing train was killed. It is said that the crew of the incoming train had been on duty for ninety hours, and that the engineer was completely exhausted. Neither he nor his fireman were hurt.

* * *

Lubricator Accidents.—According to the Topeka (Kan.) Journal of December 16, 1902, T. H. Hurley, an engineer on the Santa Fe Railroad, lost an eye by the bursting of a lubricator glass on his engine, while the Fort Wayne (Ind.) News of December 15, 1902, says that R. D. Todd, engineer, and H. C. Black, air brake inspector of the Pennsylvania Company were preparing an engine for the road which had just come from the erecting shop. They found some defect in the lubricator and while they were engaged in fixing it, from some unknown cause the

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contents exploded. The torch held by the air brake inspector ignited the oil and both men were covered by the burning fluid. In attempting to rub the oil from his face with some waste, Engineer Todd removed a quantity of skin.

♣ ♣ ♣

More Engines Wanted.—The Chicago, Ill., Inter Ocean of December 30, 1902, says: "President Cassatt of the Pennsylvania System has offered to take any locomotives the locomotive works of the country can build if any road having orders placed for 1903 will turn its contract over to the Pennsylvania, and President Loree of the Baltimore and Ohio is quoted as saying that no man can get a locomotive until January, 1904, unless the orders are now in, and that money will not buy them previous to that date."

♣ ♣ ♣

Claims for Fuel Oil.—A press dispatch to the Baltimore American, dated January 2, 1903, says that the American Head Light and Power Company, which controls the Johnston patents and processes for manufacturing both fuel and fixed illuminating gas from crude oil, "promises immediate developments in railroad work in the near future. The company maintains that in a tank, which can be readily accommodated within the usual locomotive tender dimensions, enough fuel gas of a fixed, permanent quality can be compressed and stored to run one of the largest types of freight or passenger locomotives at continuous high speed for ten or more hours and at one-third the cost of coal consumption. Tests of a practical nature are soon to be made."

♣ ♣ ♣

Paying in Checks.—According to the Ogden (Utah) Standard of December 25, 1902, the Union Pacific is experiencing difficulty with its pay checks, which are given to employes unknown to the paymasters by sight, upon very slight proof of identity. At several points on the Wyoming division this month checks were given to the wrong men and a number of forgeries were committed.

♣ ♣ ♣

The Great Lake Commerce.—There are twenty individual ports on the Great Lakes having each a registered tonnage of arrivals ranging from 1,000,000 to over 5,000,000 tons, says a bulletin from the Treasury Bureau of Statistics. On Lake Superior four different ports had a combined tonnage of 14,353,972 net tons, of which Duluth is credited with 4,971,434 tons; Superior-West Superior, 4,087,139 tons; Two Harbors, 3,123,853 tons, and Ashland, 2,171,540 tons. Lake Michigan has seven ports which fall within this class, aggregating 18,773,132 tons of arrivals. Of these Milwaukee stands at the head, with 4,622,593 tons. Next in order comes Chicago, with 4,370,638 tons, followed by Escanaba, with 2,914,256 tons, whose freight cargoes consist very largely of ore shipments to the manufacturing districts of the lower lakes. South Chicago has a tonnage of 2,293,479 tons, and if included in that of Chicago the combined tonnage would exceed the registered tonnage of any other lake port by more than 1,500,000 tons. Next in order, on Lake Michigan, come Ludington, with 1,811,375 tons; Manitowoc, 1,751,609 tons, and Frankfort, with 1,008,685 tons.

The enormous volume of this movement is only appreciated when compared with similar marine operations on the ocean frontage. New York, during the entire calendar year 1902, is credited with 8,982,767 registered tons of arrivals and 8,815,291 tons of clearances. London, for 1901, had entrances amounting to 9,992,753 tons, and clearances of 7,282,892 tons. Hongkong reported 8,626,614 tons entering and 8,620,409 tons clearing in the year 1900.

The largest group of lake ports within the million-ton class is to be found on the lower lakes between Detroit and Buffalo, nine ports on this portion of the lake coast aggregating a registry of arrivals of 22,865,772 tons. At the head of this list stands Cleveland, with 5,087,565 tons; Buffalo, 4,830,632 tons; Ashtabula, 2,888,987 tons; Conneaut, 2,511,515 tons; Detroit, 1,986,697 tons; Toledo, 1,854,262 tons; Erie, 1,524,285 tons; Lorain, 1,117,340 tons, and Fairport, 1,064,439 tons.

The twenty ports mentioned above have an aggregate tonnage of 55,992,876 tons, or 78.3 per cent. of the entire registry reported for the season to the end of November. All other ports have a combined total of 15,450,641 tons, or 21.7 per cent. of the total lake arrivals.

The number of vessels reported as arriving at Chicago to the above date was 6,525; at Milwaukee, 5,032; at Cleveland, 4,187; at Ashtabula, 1,737; at Buffalo, 3,258; at Duluth, 2,885; at Detroit, 2,854; at Escanaba, 2,341; at Toledo, 2,313; at Superior-West Superior, 2,144, and at Washburn, 2,065.

In the month of October, when the

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vessel movement was at its highest, the arrivals reached a total of 10,271 vessels, of 8,827,761 tons; and the clearances a total of 10,246 vessels, of 8,906,653 tons.

* * *

Water Glass Accident.—According to the Covington, Ky., Post of January 8, 1903, an engineer on the Cincinnati Southern Railroad, in trying to avoid the escaping steam and water from a broken water glass, leaned out of the cab window and fell to the ground, suffering concussion of the brain.

* * *

Locomotives to the Rescue.—Electricity, that brilliant vagrant of the sciences, still refuses to settle down decorously and behave herself. On the Manhattan "L" road, where the third rail system displaced steam recently, the storm of December 5th played havoc with the service. It is significant that the steam locomotives had to come to the rescue of the electrically-equipped trains after all.—International Steam Engineer.

* * *

Meant to be Funny.—The following have been taken from Railroad Men:

"Look here, young man," said the lately resigned conductor to the railroad editor, "I've always treated you white, haven't I?"

"You have."

"And when I resigned the other day didn't I tell you that I'd worked for the company twenty years?"

"I believe so."

"And yet this is the kind of a send-off you give me." And he laid the last issue of the paper on the table, and pointed to the notice of his retirement, which stated that he "had worked the company for twenty years."

"Is that brake hard to handle?" asked a young man on the local passenger of the trainman.

"No," responded that person.

"Is it very hard to turn them ventilators?" again interrogated the youth.

"No," gruffly responded the trainman.

"What is the hardest thing to do on a train?"

"Answering fool questions," replied the trainman.

Yeast—Why does that fellow walk on the railroad tracks? The train might come along and kill him.

Crimsonbeak—Yes; but I suppose the poor fellow is afraid of the automobiles.

* * * * *

The Midnight Mail

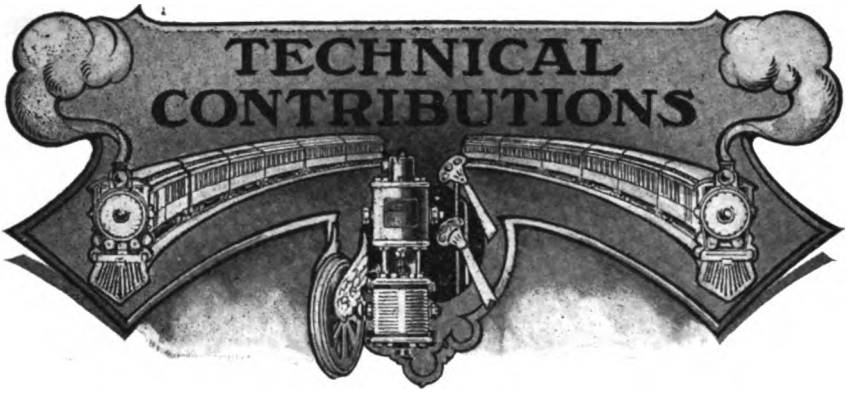
Resonant, full and deep
 Is the voice of the Midnight Mail;
It rolls through the shadowy realms of sleep
 When the high moon gleams on the rail.
It startles the drowsing oak,
 And clustered pines reply,
And the gray battalions of goblin smoke
 Hang moveless under the sky.

But, oh, not the lordly notes
 That waken the dreaming hill,
Nor the cloud-white plume that backward floats,
 Nor the clamor that warns, "I kill"—
Not the drifting smoke above,
 Nor the transient furnace-glare—
But the freightage of sorrow and joy and love
 Which the Midnight Mail doth bear!

The great, swift wheels—the long
 Yellow chain of squares agleam—
It is not for these that the poet's song
 Is blent with the roar of steam.
Not the triumph of splendid arts,
 Nor the prince of the passionless rail—
But the anxious eyes and the beating hearts
 That wait for the Midnight Mail.

—Lippincott's Magazine.

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Reduction Required to Fully Apply Brakes

ENGINEERS are familiar with the statement that a train-pipe reduction of 20 pounds or, at the most, of 25 pounds will fully apply brakes and that more is a waste of air. In so far as the ordinary station stop is concerned it is correct, but there are circumstances under which even a 25-pound reduction would not fully apply all brakes and it is the purpose of this article to explain them.

Full application means that the auxiliary reservoir and brake cylinder pressures are equal. As the brake cylinder pressure is supplied from the auxiliary reservoir alone in all service braking, it will readily be seen that when the pressures in the two are equal no further increase in cylinder pressure is possible.

With very little or no brake cylinder leakage and fairly correct piston travel a 20-pound reduction from 70 pounds train-pipe pressure will fully apply the brakes where the time over which the application is made does not exceed that of the ordinary station stop. From 80 pounds train-pipe pressure and with other conditions the same, about 25 pounds reduction is required to fully apply, but with train-pipe pressure below 70 pounds less than a 20-pound reduction will fully apply. A reduction of about one-third of the train-pipe pressure carried will insure full application even though the conditions are not quite as favorable as just specified. With short piston travel and freedom from cylinder leakage a reduction of one-fourth will fully apply.

In addition to the exception of a higher than 70 pounds train-pipe pressure requiring over a 20-pound reduction to fully apply, as already described, is the one resulting from brake cylinder leakage.

Engineers working on heavy grades have observed instances as will be described, where it was quite apparent that a 20-pound reduction from 70 pounds had not given full application and this in spite of the fact that the pressure retaining valves were in use, the effect of which, with all things as they should be, is to lessen the reduction required for full application. To bring this about requires brake cylinder leakage and a brake application held on for some time.

To explain it we will assume that a certain train requires an *average cylinder pressure* of 25 pounds to just hold the speed uniform down the grade, that 70 pounds train-pipe pressure is carried, that a 10-pound reduction from this pressure has been made and that, at the instant completed, it resulted in the average cylinder pressure of 25 pounds.

If, some seconds later, the speed commences to increase, it indicates that, because of cylinder leakage, the *average* cylinder pressure has fallen below 25 pounds and this in spite of the pressure sent into the cylinders by the reduction due to train-pipe leakage which, we will assume, has been 3 pounds.

Next, assume that a reduction of 4 pounds again controls the speed for a time as before, that during it another 3 pounds leaked off, but an increase has again commenced. It means that once more the *average* cylinder pressure has fallen below 25 pounds on account of cylinder leakage.

As the total train-pipe reduction is now 20 pounds the train pipe and auxiliary

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reservoir pressures are at 50 pounds, yet the increase in speed shows, as just stated, that the *average* cylinder pressure of the train has fallen below 25 pounds. This means that all brakes without cylinder leakage and with less than 8-inch piston travel are fully applied or have equalized at about 50 pounds, but that there are enough others with less than 25 pounds cylinder pressure, due to leakage, to make the average of all cylinders less than 25 pounds.

It should, then, be plain that a further train-pipe reduction will cause each of the brakes with cylinder leakage to send some of the 50 pounds yet in the auxiliary reservoir into the cylinder, thus increasing the pressure there.

While those without cylinder leakage will not be applied heavier, being full set, and while, on the contrary, it is probable they may lose a little through leakage back from the cylinder into the train pipe, now lower than their brake cylinder and auxiliary reservoir pressure, yet their better condition insures this loss will be less than the gain with the brakes having cylinder leakage. Therefore there will be an increase in the *average* cylinder pressure which will be apparent in the holding of the brakes.

This can be continued until the brakes with cylinder leakage have such low auxiliary reservoir pressures that a further train-pipe reduction will not increase the *average* cylinder pressure, a condition sometimes spoken of as being "all in."

It is owing mainly to the condition described that correct instructions require that in emergencies the emergency position of the brake valve be used at once, *irrespective of the amount of service reduction already made.*

With this one exception it is generally poor braking, particularly in heavy grade work, to reduce more than 20 pounds. The best braking is where the least total train-pipe reduction will permit of a prompt recharge and, at the same time, keep a fairly uniform speed.

There are two most serious objections to the undesirable method explained. The first is that the auxiliary reservoir pressure, the braking power in reserve for slowing down or to make ordinary, flag or emergency stops is being steadily lessened *without any corresponding reduction in speed.* Or, stated in a simple yet exact way, every train-pipe reduction made following the first that controlled the speed, where the former does not slow the train, increases the distance required for making an emergency stop.

The other objection is that when the brakes have finally to be recharged, the large amount of air required to restore the full auxiliary reservoir pressure, often rendered more serious by a too small main reservoir volume, will result in a dangerously high speed. Or, if this is avoided, the brakes must be reapplied without being fully recharged. Both are very undesirable, as they reduce the safety of the train.

Because of these facts, while there are exceptions to the general rule that, from 70 pounds, a 20 or 25-pound reduction will fully apply all brakes, yet the engineer who frequently proves this by practice uses poor judgment.

F. B. FARMER.

* * *

Combustion.

Combustion, or burning, is the union of that element of the air, designated as oxygen, with two elements of fuel, known as hydrogen and carbon. Perfect combustion would be the supplying, to a fire that was to produce a given amount of heat units, a steady supply of coal and air that would furnish the given amount of heat without loss of energy or waste.

To one of practical experience it is evident that perfect combustion in locomotive service is absolutely impossible. The best that can be done is to arrive as near as possible at perfect combustion and avoid, as far as it can be accomplished, the loss of heat by imperfect combustion, or by the escape of surplus steam through the "pops," as this escape of steam represents heat units, and they represent consumed coal, and coal, to the employers, represents dollars and cents.

The work of a locomotive, varying as it does from being worked at full capacity—as in starting a train, or ascending a grade—to a short cut-off, or practically a shut off of the steam supply descending grades, and the difficulties of keeping the fire always in perfect condition, renders even the approach to perfect combustion a matter of difficulty.

The amount of coal scattered over the fire must be varied to suit the work being performed by the locomotive, and to do this successfully it is necessary to note how hard the engine is being worked, to know the physical characteristics of the divisions of the road on which one is employed, and so be able to judge what the engineer will do in order to handle the engine and train successfully. The thinner the fire can be carried and not be torn in holes by the exhaust, or dead spots

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form on the grates, as might be the case with a large locomotive on a light run where the time was moderate, the better combustion will be accomplished, because the admission of air to aid in consuming the gases above the fire will be more readily accomplished through a thin than through a thick medium. For the same reason, coal should be broken to a size that will not drop through the grates, or be drawn into the flues unconsumed by the action of the exhaust.

It is evident that a lump of coal covering a foot square of grate surface allows no air entrance over that space until the action of the fire has broken it up, and while this is going on there is a certain loss of heat units in the firebox by reason of deficient air admission, whereas if this lump of coal had been broken into several fragments before being placed on the fire this loss would not have occurred.

From this fact that the burning of the gases and coke coal is so rapid in a locomotive firebox, it is often impossible for the fireman to meet the demand for a fresh supply of fuel properly broken, unless the coal is broken near the proper size before being placed on the tender. If the fire is given a sufficient supply of coal in large lumps that are hard to ignite, or is not given enough coal through the inability of the fireman to break the coal to a suitable size and get it onto the fire as rapidly as it is needed, there will be a loss of heat and, in consequence, a loss of steam, and very probably at a critical time when the engineer needs all the power he can obtain to handle his train successfully.

The air entering through the dampers, in passing through the fire, gains a certain amount of heat and is in better condition to join in the act of combustion. The admission of air by the dampers should be regulated to suit the work the locomotive is doing and, to a certain degree, in proportion to the depth of the fire on the grates. Dampers should be so arranged that they can be regulated, and not so that they must be used either wide open or entirely closed. Under ordinary conditions the back damper will admit sufficient air, the forward one being used in an auxiliary capacity. The more thoroughly the air is mixed with the escaping gases the better will be the combustion, and the admission of air equally over the entire grate area is the safest and best method. By the safest, I mean for the welfare of the firebox, and by the best, I mean that the most thorough combustion of the air with the coal gases is obtained.

The effects of a hole in the fire on the steaming qualities of an engine have been noted by every engineman. The inrush of air in a body through the grates at any point in the firebox cools the gases at that point below the igniting temperature and destroys combustion in that section of the firebox, and carries a certain amount of heat with it up the smoke-stack. Anything that restricts the passage of air freely through the grates is a detriment to proper combustion.

The improper cleaning of fires on the road or at terminals, the use of insufficient wood when firing engines up, and the throwing in of coal on the bare grates to make up for the deficiency and using the blower to increase the draft and hasten the raising of steam pressure, thereby melting the coal instead of burning it, filling the spaces between the fingers of the grates with clinkers and slag, and the failure to clean out these spaces before an engine is fired up, all tend to diminish the air admission. Allowing a fire to become too heavy by reason of failure to handle the grates properly, or by reason of too heavy firing should be avoided, as it causes the fire to become thick and thus retards the free passage of the air through the fire and into the firebox.

When fresh coal is thrown on a fire it both retards the draft and smothers, or, more plainly speaking, cools the fire down. If the amount of coal thrown in is small and well scattered this result will be brought about in a very small degree, but should the charge be a very heavy one a large amount of the gas which commences to form immediately the fresh coal is put on will escape through the stack unconsumed, and there is a loss of a number of heat units, representing an equal amount of undeveloped energy.

In locomotive practice there are times when it is well nigh impossible to avoid a certain amount of loss from this cause. At meeting points, the fire being allowed to burn low to avoid the loss by the engine blowing off steam, and with a heavy train to start or, perhaps, a grade to ascend directly out of the meeting point, it is necessary to put in enough coal to keep from losing the fire when leaving the stations, as there is neither time nor opportunity to build the fire up to the proper standard gradually as should be done.

The depth of the fire, like the amount of coal being shoveled on the fire, must be proportioned to the work the locomotive is doing. Practical experience and observation will give anyone the necessary knowledge of what is required on

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these two points, and the fireman who fires from the commencement of his trip so as to have a good fire and, as a resultant, steam on the last ten miles of the trip, is making the work easier for himself and everyone else on the train. When I say "fires" I do not mean shoveling coal alone, but the other things connected with the work that goes to make up a fireman's duties. Allowing a firebox to fill up with ashes or clinker, when possible to remove them, is only increasing one's labor in another direction more than the extra labor involved in removing them, to say nothing of the satisfaction of having a maximum steam pressure all the time and furnishing it as economically as possible.

It is safe to say that with grate spaces open and the fire not too heavy, plenty of air will be furnished the fire for the needs of combustion in the average locomotive. The levers for shaking the grates should be so arranged as to give the fireman opportunity to move the grates without placing himself in a cramped or awkward position, and so as not to render himself liable to injury by the slipping of the cab lever when exerting his strength on sticky grates. Where coal is used that tends to stick or clinker grates, as great leverage as possible should be given the grates to allow of their being moved easily.

A sufficient quantity of air is as necessary to proper combustion as is a sufficient quantity of coal, and when one has fixed that fact in his mind he is certain to look more closely after the air admission. The supply of air required, like the supply of coal, is proportioned to the needs of the engine at any particular time. It is obvious that on a passenger run, where the coal consumption to furnish the required amount of steam is eight tons in four hours, twice as much air must be admitted in the four hours as would be required in four hours on a freight run consuming eight tons of coal in eight hours. To sum up, the coal consumption is proportioned to the work being done, and the air admission (consumption) is proportioned to the coal consumption.

As before stated, at the moment fresh coal is put on the fire coal gas commences to generate and, if there is not a sufficient supply of air present to furnish oxygen for combustion, this gas escapes unconsumed into the atmosphere. To be certain that the supply of air will be available in the firebox, the method of inserting a number of flues in the walls of the firebox—denominated as smoke burners—has become decidedly popular. These flues are placed above the fire line and are usually 2-in. in diameter, and ten or twelve in number. Ten combustion flues 2-in. in diameter would admit a stream of air equal to 31.416 square inches directly above the fire, cooling it and thus destroying a certain amount of heat. The admission of air in large quantities above the fire, whether through the firedoor or otherwise, cools the fire, sheets and flues, but the coal consumption still goes on. In some cases firemen have carried plugs with them and before leaving terminals would plug the majority of the combustion flues on their engine, removing them upon arrival, for the reason that with the flues plugged the engine made plenty of steam, while with them open the engine steamed very badly and the master mechanic, believing the smoke burners to be a perfect success—even in over-doses—would hear nothing against them. "They were a success on the P. & Q.; they must be so on the D. & I." The trouble was there was too much smoke burner and the practical experience of the fireman was not given proper consideration.

If air admitted over the fire could be admitted in small quantities in different parts of the firebox so as to mix with the gases and help consume them, instead of coming in as a blast that both cools and blows them away, the result would be a great deal more satisfactory to all concerned. The admission of air above the fire in large quantities should be avoided, as it is more injurious than beneficial, regardless of the manner of admission.

W. L. FRENCH.

* * *

Westinghouse Electro-Pneumatic System of Train Control.

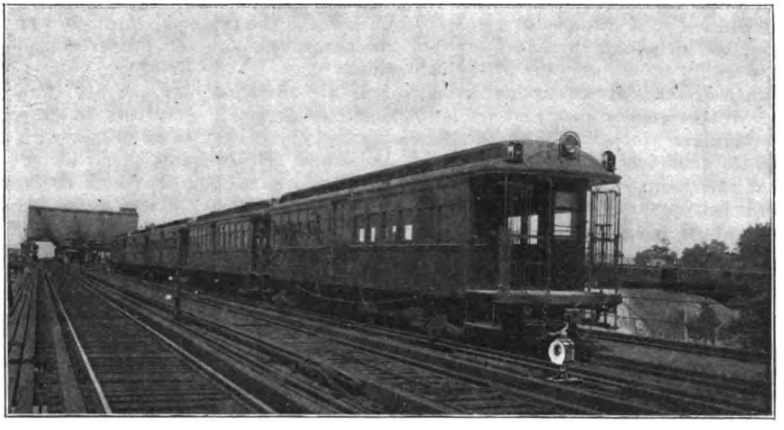
The Brooklyn Elevated Railway Company has just given an order to the Westinghouse Electric and Manufacturing Company for 210 multiple train-control equipments which will be used for the operation of electrically propelled trains on its lines. A few years ago the management of this road decided to discard steam locomotives and to operate all trains electrically. Before making such a wholesale change, however, it was deemed prudent to test exhaustively the different methods of handling electric trains. If the steam locomotive were to be replaced by simple electric locomotives many of the advantages of electric traction would be sacrificed. In order to re-

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duce the dead weight hauled and to obtain a higher tractive effort when starting, it is better to place the driving motors on the trucks of several of the passenger cars of a train and thus take advantage of the weight of the cars than to put the motors on a locomotive, which must be artificially loaded down to give it the necessary adhesion. Other reasons for choosing a system employing a number of motor cars per train rather than a single locomotive were that, since the service is fluctuating, during a part of the day the large motors of the locomotive would be operated at a light load and consequently low efficiency. Moreover, the trains could not be broken up into single units, as is possible when a number of the cars carry their own motor equipments.

The Brooklyn Elevated Company, therefore, went to the leading manufacturers who had developed systems for controlling a number of motor cars in a train, and asked them each to equip a number of model trains for testing purposes. These trains were placed on the Brooklyn road a few years ago and have since been operated in the regular daily traffic. The companies furnishing equipments were the Westinghouse Electric & Mfg. Co. of Pittsburg, the General Electric Co. of Schenectady, N. Y., and the Sprague Electric Co. of New York City. Careful records were kept of the number of miles run by each train, the number of accidents met with, the cost and time required for repairs, the comparative convenience in operation, and all other matters that might influence the decision. The result of this investigation has been the placing of the order mentioned above. All steam locomotives now in use will be in a short time replaced and trains will be operated by the Westinghouse system. In addition to the order for 210 cars, the Company has already purchased about 150 equipments which have been in satisfactory operation for nearly a year.

The Westinghouse Multiple Train Control system has been developed by Mr. George Westinghouse, and, on account of his long experience in railroad and electrical matters, is eminently adapted for the operation of trains under everyday railway conditions. The Westinghouse system involves the use of compressed air for moving the current-controlling apparatus, electro-magnetic valves governing the admission of air to the controlling cylinders and low voltage electric circuits running from car to car for controlling the action of the magnet valves. The connections for the low voltage circuits are the only ones which have to be established between the cars of the train, no air connections being required outside of the ordinary brake hose. A complete equipment for each motor car consists of two or four electric motors, a controller very similar to the controllers used on ordinary street cars, and one or two motormen's controlling switches, from any one of which all the car controllers on the train may be operated. The car controller, as stated, is similar in design to the ordinary form of hand controller which has been successfully used on electric street cars for many years. It consists essentially of two drums which revolve in bearings, and stationary contact



BROOKLYN ELEVATED RAILWAY TRAIN

Equipped with Westinghouse Electro-Pneumatic System of Train Control

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fingers which make contact with points upon the revolving drums. The large or main drum opens the main circuit and makes the motor and resistance combinations; the small drum reverses the motors. A multiple control switch is placed at one or both ends of each motor car and by means of the one at the front of the leading car the motorman controls the action of the controllers on all of the motor cars in the train. Some of the points of superiority of this system over other systems may be stated as follows:

It employs compressed air for operating the control apparatus and thereby uses a powerful and reliable agency. It uses the standard type of controller and standard types of valves and magnets, the latter having been used for years in the operation of the Westinghouse electro-pneumatic system of switches and signals upon the largest railways in the world. It is the only system in which the control circuit is isolated from the main power circuit. The control circuit is, therefore, not affected by a momentary interruption of current due to ice and sleet on the rails, or other causes. With the low voltage current, grounds and short circuits at the connectors between the cars during stormy weather or fires resulting from high voltage circuits through the train are entirely eliminated. The current for the motors is simply collected from the third rail, led through the local car controlling apparatus to the motors, and then back to the service rails, and does not pass from car to car. The controlling apparatus is so located that the motorman may have convenient access to all parts from the platform.

The motor circuits on any car are automatically opened in case of excess current and they can all be simultaneously closed at the will of the motorman. All controllers are automatically turned off by the application of the automatic air brakes, which is an important point since in case of a train breaking in two the brakes are automatically applied and at the same time the power is shut off. With other systems under some circumstances, it has been found impossible to shut off the power from some of the cars, while in the Westinghouse system there are a number of ways in which this may be accomplished, greatly reducing the possibility of accident. Both controllers and circuit breakers are opened by a breaking in two of the train, this action being independent of and in addition to the effects obtained by the application of the air brake. The controllers may be operated by hand, thus permitting the train to run to a terminal station in case of any derangement of the controlling apparatus. The operation of both brakes and controllers is effected by a single air hose connection between the cars, the air compressor which furnishes air for the brakes also furnishing air used to operate the controllers.

The Brooklyn Elevated will equip all its new cars with four motors each. The 150 cars now in use equipped with the Westinghouse system have each two motors. The trains on the road are made up of five or six cars, two or three of which are usually motor cars. When these trains reach the suburbs they are broken up into smaller units of one or two cars, each of course containing a motor car, and the smaller trains branch off on different divisions. By the use of this system it is possible to operate cars individually as on ordinary trolley roads, or to make them up into trains of any length. Also, any proportion of motor cars may be used, making it possible to obtain any desired amount of power for starting the trains quickly, which is necessary in any service involving many stops.

The significance of the investigation into the different systems of train control which has been carried on by the Brooklyn Elevated will be appreciated when it is remembered that the Rapid Transit Subway in New York will be operated by electricity and, since its trains must be operated at high speed, some system of multiple train control will have to be adopted. There is, also, the Pennsylvania tunnel system under New York, which the ordinance recently passed by the Board of Aldermen requires must be operated by electricity or some other agency not involving the burning of fuel in the tunnel.

In the great transportation problems which are being solved in New York City, the Westinghouse Company has borne a prominent part. It has furnished the power equipment of the Brooklyn Elevated, also the power equipment of the Manhattan Elevated, including eight of the largest generators ever built. It has contracted to furnish the power equipment of the Rapid Transit Subway, the power-house of which will contain six units similar to those furnished to the Manhattan people, while the Brooklyn Elevated contract indicates a satisfactory solution of the train control situation.

CORRESPONDENT.

* * *

Reporting Brake Work.

The question asked by M. E. S. in this number of the MAGAZINE comprehends an important principle, yet given too little

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thought and care by those reporting brake work, even though there has been a very considerable improvement over the days when the example given was not uncommon. The repairman found on the work book one morning the following report: "Air pump and steam heat governor won't work; overhaul them." The engine was in passenger service, was then cold and would not be fired up until after shop hours. As a matter of fact, the pump did work; for a failure in this would have necessitated use of hand brakes coming in, which would have been reported to the master mechanic by a telegram from the operating department. No such report had been made, yet absence of knowledge as to the actual or probable cause necessitated changing the pump, where otherwise the fault might have been easily and quickly repaired.

The principle referred to is that of making sufficiently accurate reports that an intelligent repairman will quickly understand what the fault is. This does not mean stating the exact fault in every case; for there are defects which can not be accurately located until the pump, triple, governor or part which is defective has been looked into.

Where the engineer is not sure of the exact location or character of the fault he should give the important symptoms of bad order after giving his opinion of the cause of trouble. To be sure, the ability to give the symptoms correctly requires an understanding of the apparatus, a knowledge of what to look for and how to make the necessary tests, but all this is information which, as an engineer, he should have.

Object lessons are the best teachers, and these are open to the fireman seeking for knowledge as well as to the engineer. Many men have thought they were right in their understanding of certain matters and never learned better because they did not discuss them with others. The man in error, who finds it out by such discussion is far ahead of the wise (?) one who never lets others find out how little he knows.

For these reasons it is desired to commend not only the man who asked the question, but the other one he refers to as "A." The air brake department wants more questions. They indicate an interest in air brake matters which it is desired to awaken that the engineers and firemen in general may better understand and operate this important apparatus.

Many an engineer, or fireman, for that matter, could have saved a serious accident, loss of life and his position by having and using the knowledge by which the approximate length of the train that cut-in is determined by the length and strength of the equalizing discharge port exhaust.

F. B. FARMER.

Oil-Burner Troubles.

The proper handling of fuel oil on a locomotive requires a greater degree of skill than is generally supposed to be the case, and the fact that a man may be an expert in the handling of coal does not go to show that he will succeed as an oil fireman. Of course, I don't mean to say that the poor coal fireman will make a good oil fireman, but I merely wish it understood that the degree of skill required by a man who understands the proper handling of oil is rarely attained, and, in fact, is not necessary in the handling of coal. There are a great many things that may happen to an oil-burner which will affect the steaming qualities, so that it is necessary to see that everything is in proper condition before starting.

Nothing will cause an engine to fail in steam any quicker than when the flue sheet and flues get covered with soot. This soot is the result of forced firing, or, in other words, allowing more oil to flow into burner than is necessary, or that will be properly consumed with the amount of work the engine may be doing. In order to remove this soot from the flues, sand is used. This is introduced into the firebox by means of a funnel through a small hole made in the door for that purpose, and the funnel should be held so that the sand will be carried over, instead of under, the arch. The amount of sand that should be used all depends on the amount of soot that is on the flues, and sand should be used until all black smoke disappears.

The proper time to sand an engine is after leaving the roundhouse, when you are on the way to the train, as the flues generally get badly covered with soot resulting from firing up, and this should be all removed as soon as possible, but on account of the fact that a strong exhaust is necessary to properly clean out the flues, by carrying the sand over the arch and through the flues, it is generally advisable to wait until you pull out with train, for, if the exhaust is not heavy or strong enough, the sand will do more harm than good, by dropping down on the bricks in floor of firebox and in front of burner, thereby interfering with the free passage of oil from burner to front of firebox. It should be seen to before starting that the firebox in front of the burner is free from any bricks, and that the floor of firebox is as smooth as possible, for

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when the bricks get rough they have a tendency to drag the fire, and the result is that the fire must be forced and black smoke follows.

To obtain thorough combustion in the firebox, a correct combination of steam and oil must be had, and this is obtained by admitting steam in the burner so that it will thoroughly mix or atomize the oil and spray it into the firebox. To enable the oil to flow freely from the tank to the burner, it must be heated. This is done by means of connecting a pipe so that steam will be led into the tank from the boiler. The connection between the engine and tank is generally made by means of a hose. In some types of heaters the pipe forms a coil inside of the tank, and there is a drain cock underneath which allows the water resulting from the condensation of the steam to pass off. This method, however, has proved very unsatisfactory, as it requires too long a time to heat the oil and a great many delays have been occasioned by the failure of the oil to run fast enough to the burner to maintain the desired pressure of steam on engines equipped with this style of heater. The most successful method of heating the oil is by allowing steam from heater pipe to flow directly into the oil, thus heating it in a very short space of time. The oil should be heated as much as possible while standing still, and the tank heater-valve should then be opened up strong and left on until oil is hot, and then closed. In order that the oil may be heated just before it reaches the burner, a super-heater is used This consists merely of a pipe about a foot long, but twice as large around as the oil feed pipe. An opening large enough to allow the oil feed pipe to pass through is left at each end, and a slight pressure of steam sufficient to heat the oil is maintained therein. A drain-cock is also used to allow the water formed by the condensation of the steam to pass off.

The drumming or rumbling sometimes occuring is the result of opening the atomizer-valve too much, or by allowing too much oil to flow to burner while engine is working slowly. If too much water is allowed to accumulate in the ashpan from the injector's overflow, the exhaust will draw it up into the firebox and the fire will be extinguished. A good plan is to make a few small holes in the bottom of the pan so that any surplus water will pass out. A pipe is connected from the super-heater to the oil feed pipe so that in case the burner should become choked up from one cause or another, by opening this valve, closing tank-valve, and opening the firing valve, steam will pass from the super-heater to oil feed pipe and thence to burner, and will blow out any obstruction that may be therein.

Sometimes the oil feed pipe becomes choked up, and by opening the tank-valve and closing the firing-valve the steam from super-heater flows back through feed pipe and blows any obstruction that may be in it back in the tank. It must be seen to that this blow-back valve, as it is called, is closed properly after you have blown out the burner or the feed hose, for, should it be left open, it would interfere with the flow of oil to the burner and the fire will burn in a series of explosions.

Should the tank heater hose burst so that oil in tank could not be heated in the proper manner, after closing the dampers and putting the fire out at the first stopping place, the oil may be heated in the following manner: Close firing-valve, open tank-valve if it is not already open, and by opening the blow-back valve the oil will be heated sufficiently so that you can proceed very shortly with train, and if not in very cold weather the super-heater will keep the oil hot enough to get to destination.

Much more might be said in regard to the handling of oil, but the information already given in this article will enable any one not having much experience to know what to do in case of any of the failures which have been described, and which are the principle ones likely to happen under ordinary circumstances.

P. F. T.

* * *

How it Happened.

It was on the 18th of October, 1902, that something developed on our line altogether new. We were out of Terre Haute that day, as the sun sank in the west. We only had two coaches, with 19 at her best. The first station out of Terre Haute, the name of which is Keller; how we passed that place that night, would almost surprise a feller. We rushed along through old Blackhawk, with everything all-right. The way we ran from there to Lewis was sure a holy fright. We left that place all smooth and nice, with everything still right. Next stop we made was old Coalmont, and she was soon in sight. We left Coalmont and on we ran, still at a good old gait. But when we got to Jasonville, were then four minutes late. So out of Jasonville we went, only these four minutes late. But when at Latta, at 6:18, we thought we'd met our fate. For no sooner had we passed along by the old switch-stand not far, the rays from the old 19's headlight gleamed down upon a car. So when George saw the car out

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there, of course it made him wonder. He then at once applied the brakes; it sounded loud as thunder. No sooner had we hit the car loaded down with rail, it threw me out upon my head, and made my bones feel frail. I lost my head—I guess I did! I wandered quite a spell; one thing I know, and know for sure, it made me quite unwell. No crews are great till they can see how less than little they would be, if in the dark they set a snare, by leaving cars out anywhere.

JAMES M. CORBIN.

Talks with an Air Brake Instructor

By E. G. Desoe

Dialogue No. 14—Pump Governors.

Instructor.—We will talk about the pump governor this afternoon. Do you know the duty of the governor?

Student.—Its duty is to control the speed of the pump.

Instructor.—Not exactly. The number of strokes which a pump may make per minute depends on the boiler steam pressure, back pressure of steam, air pressure in main reservoir, and amount of throttle opening. The duty of the governor is to start and stop the pump by admitting and shutting off steam to it. What is it that controls the operation of the governor?

Student.—Air pressure.

Instructor.—By reference to the sectional cut, Fig. 1, you will be able to become familiar with the name of the different parts so that you can understand its explanation better.

You see that the steam valve and governor piston are connected together, so that when one is moved it will move the other. When in normal position the steam valve is wide open so that steam may flow freely to the pump. With 200 pounds steam pressure, air at 40 or more pounds pressure on top of the piston will force it down and thereby cause the steam valve to be closed, shutting off steam to the pump.

Student.—Excuse me for interrupting, but I would like to inquire how 40 pounds air pressure can close the valve against 200 pounds steam pressure?

Instructor.—That is due to the area of the piston being 3.976 square inches, and of the valve only .7854 square inches. With 40 pounds air pressure there will be about 159 pounds force exerted on the piston, and 200 pounds steam pressure would cause a resistance of about 157 pounds on the steam valve. This gives a difference of 2 pounds to move them.

Student.—I did not think about the difference in area.

Instructor.—As I was saying, when air pressure is admitted to the top of the piston it will be forced down. Should this air pressure above the piston be permitted to escape, then, the steam pressure on the bottom of the steam valve will force it and the piston up, thereby opening communication to the pump so that steam can again flow to it.

Student.—I understand that the steam valve is either open or closed, and that it is open whenever there is no air pressure on top of the piston, and that it is closed whenever there is 70 pounds or more pressure of air on top of the piston.

Instructor.—As a rule that is correct, but under certain conditions, which I will explain later on, it may be slightly open. Do you know what controls the flow of air to the piston?

Student.—A small valve, No. 47 in this cut.

Instructor.—That is right. What controls the movement of this valve?

Student.—I do not understand clearly how it is controlled.

Instructor.—The valve 47 is attached to diaphragm 42, on top of which is regulating spring 41. The spring holds the valve closed whenever the tension is sufficient to overcome the air pressure in chamber "a" under the diaphragm, which has a tendency to open it by forcing the diaphragm up. Therefore whenever the pressure of air admitted to the governor is greater than the tension of the regulating spring, the valve is opened, and when it is less it is closed.

Student.—I understand that the valve, which controls the flow of air to the top of the piston, is closed by the regulating spring, and opened by the air pressure admitted to the governor, acting on the under side of the diaphragm.

Instructor.—That is right. If it is desired to have the pump stop when the air pressure admitted to the governor is 70 pounds, what is necessary?

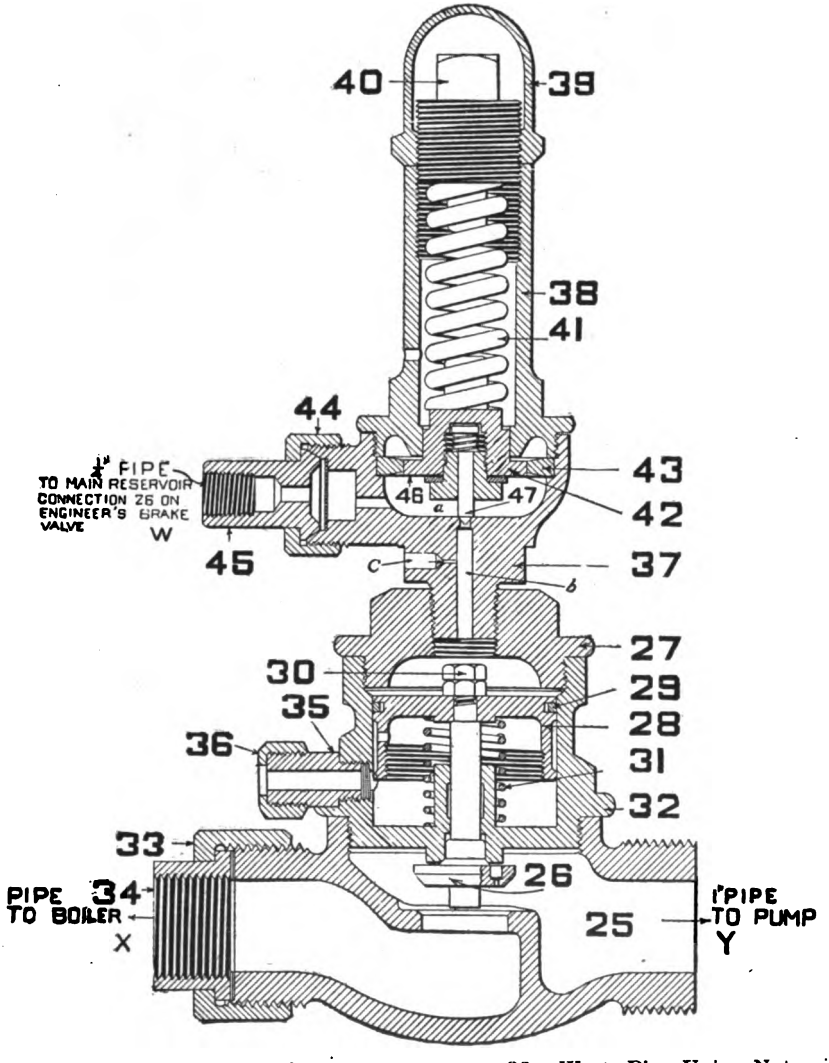
Student.—It is necessary to have the tension of the regulating spring such that 70 pounds pressure will open the valve.

Instructor.—How may the tension of the spring be adjusted?

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Student.—By removing check nut (No. 39 in this cut) and screwing down regulating nut (No. 40 in this cut) or unscrewing it. That is, screw down to give the spring a greater tension, and unscrew to give it less tension.

Instructor.—You now understand that with sufficient air pressure on top of the piston the steam valve will be closed, and that it will be opened again whenever the air pressure becomes insufficient to hold it closed. You also understand how the air pressure is admitted to the piston. Do you know how the pressure above the



25. Steam-Valve Body.
26. Steam Valve.
27. Cylinder Cap.
28. Governor Piston.
29. Piston Packing Ring.
30. Governor-Piston Nut.
31. Governor-Piston Spring.
32. Steam-Valve Cylinder.
33. One-Inch Union Nut.
34. One-Inch Union Swivel.
35. Waste-Pipe Stud.
36. Waste-Pipe Union Nut.
37. Diaphragm Body.
38. Spring Box.
39. Check Nut.
40. Regulating Nut.
41. Regulating Spring.
42. Diaphragm.
43. Diaphragm Ring.
44. Union Nut.
45. Union Swivel.

Fig. 1. One-Inch Pump Governor.

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piston is reduced so as to permit the steam valve to open, when the regulating spring closes valve No. 47?

Student.—No, sir.

Instructor.—Port "c" is provided for this purpose; it is a very small opening leading from the chamber above the piston to the atmosphere, and should always be open.

Student.—I do not understand how any pressure can be had on top of the piston with an opening to the atmosphere.

Instructor.—The port admitting air to the chamber is much larger than port "c", therefore, even with air escaping through port "c" there may be the same pressure in this chamber as there is in that part of the brake apparatus from which the supply is obtained.

Student.—I understand that when valve 47 is opened, air will begin to escape from port "c" and will escape as long as the valve is open, and until all the pressure is exhausted from the chamber after it is closed.

Instructor.—That is right. To what air pressure is the governor connected?

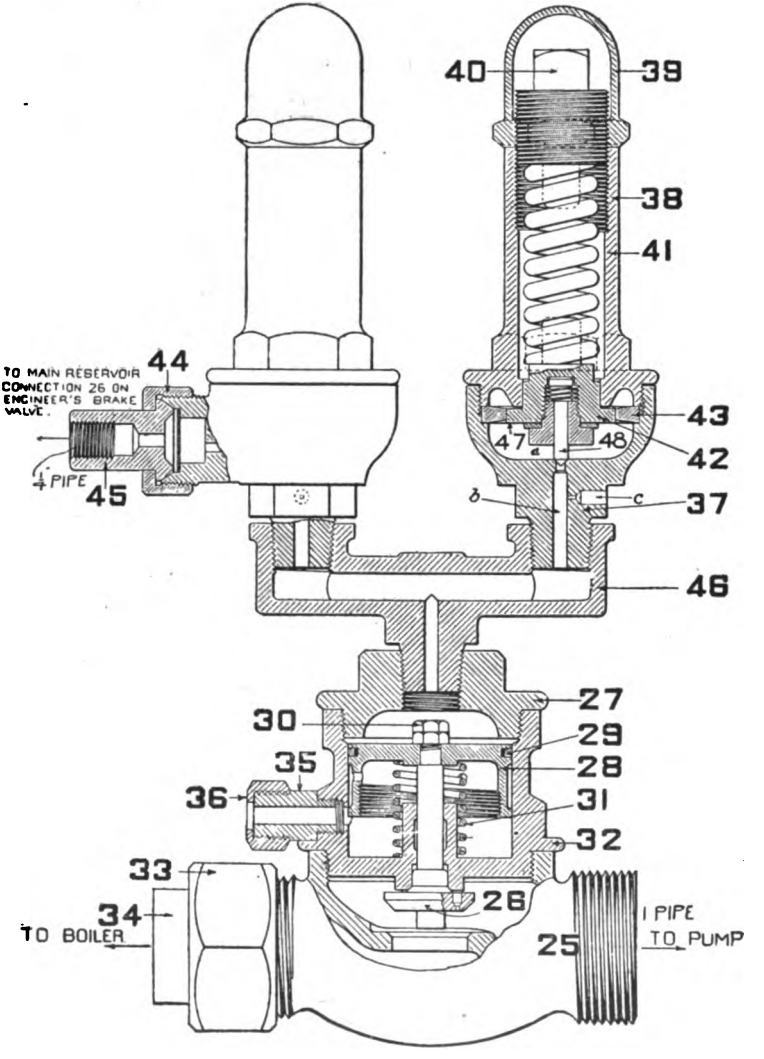


Fig. 2. Duplex Pump Governor.

Student.—With the old style valve it should be connected to the train line pressure, and with the improved brake valve to the main reservoir pressure.

Instructor.—What is the object of the waste pipe?

Student.—I do not know.

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Instructor.—It is to prevent there being any pressure, of either steam or air, under the piston, No. 28. Steam will leak into this chamber under the piston by the stem connecting the piston with the steam valve, and air by the piston packing ring, and if it is not permitted to escape there will be a pressure under the piston.

Student.—What is the object of the spring under the piston, No. 31?

Instructor.—It is to hold the valve normally open, and assists the steam pressure to open it.

Student.—What is the small hole for in the side of the spring box?

Instructor.—It is to prevent any air pressure from accumulating on top of the diaphragm. Before starting the pump on an engine without air pressure, what position should the different parts of the governor be in?

Student.—The valve 47 should be on its seat, and the steam valve should be wide open.

Instructor.—Assuming that the governor is attached to train line pressure, and set at 70 pounds, what should take place when that pressure is obtained in the train line?

Student.—The air pressure acting on the under side of the diaphragm forces it up against the tension of the regulating spring, thereby causing the valve 47 to be opened, admitting air to the top of the piston, and the air pressure acting on the top of the piston moves it down, thereby causing the steam valve to be closed, and the pump will stop.

Instructor.—That is right, but with the pump running moderately and the governor in good condition, there may be only sufficient air admitted to the piston to move it down so that the steam valve will not be entirely closed and the pump will run slowly. Should a reduction of the train line pressure be made, what should take place?

Student.—Valve 47 would be closed by the tension of the regulating spring, and when the air pressure above the piston has escaped through port "c" the steam pressure, with the help of the spring 31, should open the steam valve and permit the pump to go to work again.

Instructor.—I think you now understand the operation of the governor thoroughly. The duplex pump governor, shown here in Fig. 2, consists of one body and two heads which are constructed like the one I have just explained, and which is shown in Fig. 1.

Student.—What is the object of having two heads?

Instructor.—It is to enable using two different air pressures. When they are used with the old style brake valve, one head is adjusted for 70 pounds pressure and attached to train line pressure; the other is adjusted for 100 pounds pressure and is attached to main reservoir pressure. When they are used with the improved brake valve, one head is generally adjusted for 80 pounds pressure, and connection is made to the main reservoir port, between the rotary and feed-valve attachment, in the brake-valve. The other is adjusted for 110 pounds and attached directly to the main reservoir pressure. When used in connection with the "High Speed Brake" or "High Pressure Control" apparatus, one head is generally adjusted for 100 pounds and the other for 130 pounds, both being connected directly to main reservoir pressure. A stop-cock is placed in the pipe connecting the head adjusted for 100 pounds pressure and, when closed, cuts this head out. The head adjusted for the higher pressure has nothing to do with the operation of the governor so long as pressure is admitted to the other head, for the low pressure head will operate and cause steam to be shut off from the pump before the air pressure is high enough to operate the high pressure head.

Student.—I do not understand the benefit of using the duplex governor as you have described it, and I wish that you would please explain.

Instructor.—When used with the old style valve it permits the pump to start up when a reduction is made, as the head set for 70 pounds operates just the same as if there were but one, and the pump will now run until the pressure in the main reservoir is 100 pounds, when the head attached to that pressure, and set for 100 pounds, will operate, thereby causing the pump to stop, preventing too high main reservoir pressure being obtained, when handle of brake valve is on lap. When used with the improved valve the pump works against only 80 pounds pressure in maintaining the air pressure. When an application is made it will start up on account of the supply of air to the head set for 80 pounds being cut off by the rotary valve, and the pressure in the main reservoir will be increased to 110 pounds. The use of the duplex governor with the "High Speed Brake" and "High Pressure Control" I will explain when we talk about those devices. How do you think it would affect the governor should port "c" become stopped up?

Student.—As I understand the operation it would prevent the air pressure

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from escaping from the top of the piston, and the steam valve would be held closed.

Instructor.—The volume of air above the piston is very small, and there is always some leakage by the ring in the piston, so, even with port "c" closed, it will escape very quickly.

Student.—I do not understand, then, why it is necessary to have port "c."

Instructor.—I will ask you another question before answering. What do you think the result would be should valve 47 fail to seat tightly, due to dirt lodging on its seat—port "c" at this time being free?

Student.—I should say if air leaked by valve 47 faster than it could escape from the chamber above the piston, the steam valve would remain closed, and if it did not leak by quite as fast as it was escaping from the top of the piston to the atmosphere, then, the pressure would be reduced above the piston and the steam pressure would open the steam valve.

Instructor.—That is right. Now suppose that port "c" is stopped up, and the ring in the piston is fairly tight, with valve 47 leaking on its seat, what would the result be?

Student.—Under these conditions I should say that valve 47 must seat so that there will be no leakage by it or the steam valve will remain closed.

Instructor.—That is right, and the benefit then of port "c" is to permit air to escape that may leak by valve 47. Of course, should the ring in the piston be perfectly tight, which is not at all probable, the air pressure above the piston could not escape with port "c" closed. What do you think the result would be should the waste pipe become frozen, or stopped up in some other way?

Student.—With the waste pipe closed, pressure would accumulate under the piston, and the air pressure on top of it could not move it down so as to close the steam valve, and the pump would not be shut off when it should be.

Instructor.—I do not think of anything more that I can talk with you about relating to the pump governor, and I feel that you must now understand it thoroughly.

Student.—I find that there is a good deal more to it than I had any idea of, but, with your very explicit explanation, I believe I now thoroughly understand it.

Movement of Trains

By H. A. Dalby

Latest Revision of the Standard Code.

As it is almost two years since extracts from the Standard Code were published, and as frequent references are made to it, herewith are given such rules as have a direct bearing upon the movement of trains. The Code has been revised since that time, though there has been no material change. The rules for double track have been adopted, however, the principle being to incorporate such of the single track rules and forms as are applicable to double track, to revise those which are capable of revision, to omit those which do not apply and to insert new ones if necessary. When a rule is the same for both single and double track, or where only a variation is necessary, the same number is used. All double track rules are prefixed by the letter D.

Definitions.

Train.—An engine, or more than one engine coupled, with or without cars, displaying Markers.

Regular Train.—A train represented on the time-table. It may consist of Sections.

Section.—One of two or more trains running on the same schedule displaying signals or for which signals are displayed.

Extra Train.—A train not represented on the time-table. It may be designated as—

Extra—for any extra train, except work extra;

Work extra—for work train extra.

Superior Train.—A train having precedence over other trains.

A train may be made superior to another train by RIGHT, CLASS or DIRECTION.

RIGHT is conferred by train order; CLASS and DIRECTION by time-table.

RIGHT is superior to CLASS or DIRECTION. DIRECTION is superior as between trains of the same class.

NOTE.—Superiority by direction is limited to single track.

Train of Superior Right.—A train given precedence by train order.

Train of Superior Class.—A train given precedence by time-table.

Train of Superior Direction.—A train given precedence in the direction specified in the time-table as between trains of the same class.

NOTE.—Superiority by direction is limited to single track.

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Time-table.—The authority for the movement of regular trains subject to the rules. It contains the classified schedules of trains with special instructions relating thereto.

Schedule.—That part of a time-table which prescribes the class, direction, number and movement of a regular train.

Main Track.—A principal track upon which trains are operated by time-table, train orders or by block signals.

Single Track.—A main track upon which trains are operated in both directions.

Double Track.—Two main tracks, upon one of which the current of traffic is in a specified direction, and upon the other in the opposite direction.

Current of Traffic.—The direction in which trains will move on a main track, under the rules.

Station.—A place designated on the time-table by name, at which a train may stop for traffic; or to enter or leave the main track; or from which fixed signals are operated.

Siding.—A track auxiliary to the main track for meeting or passing trains, limited to the distance between two adjoining telegraph stations.

Fixed Signal.—A signal of fixed location indicating a condition affecting the movement of a train.

NOTE.—The definition of a "Fixed Signal" covers such signals as slow boards, stop boards, yard limits, switch, train order, block, interlocking, semaphore, disc, ball or other means for indicating stop, caution or proceed.

Yard.—A system of tracks within defined limits provided for the making up of trains, storing of cars and other purposes, over which movements not authorized by time-table, or by train order, may be made, subject to prescribed signals and regulations.

Yard Engine.—An engine assigned to yard service and working within yard limits.

Pilot.—A person assigned to a train when the engineman or conductor, or both, are not fully acquainted with the physical characteristics, or running rules of the road, or portion of the road, over which the train is to be moved.

Time-Tables.

4 (A). Each Time-table, from the moment it takes effect, supersedes the preceding Time-table.

A train of the preceding Time-table thereupon loses both right and class, and can thereafter proceed only by train order.

No train of the new Time-table shall run on any division until it is due to start from its initial station, on that division, after the Time-table takes effect.

4 (B). Each Time-table, from the moment it takes effect, supersedes the preceding Time-table. A train of the preceding Time-table shall retain its train orders and take the schedule of the train of the same number on the new Time-table.

A train of the new Time-table which has not the same number on the preceding Time-table shall not run on any division until it is due to start from its initial station, on that division, after the Time-table takes effect.

NOTE TO RULES 4 (A) AND 4 (B).—The Committee has recommended two forms of Rule 4, leaving it discretionary with each road to adopt either, as best suits its own requirements.

5. Not more than two times are given for a train at any station; where one is given, it is, unless otherwise indicated, the leaving time; where two, they are the arriving and the leaving time.

Unless otherwise indicated, the time applies to the switch where an inferior train enters the siding; where there is no siding it applies to the place from which fixed signals are operated; where there is neither siding nor fixed signal, it applies to the place where traffic is received or discharged.

Schedule meeting or passing points are indicated by figures in full-faced type.

Both the arriving and leaving time of a train are in full-faced type when both are meeting or passing times, or when one or more trains are to meet or pass it between those times.

When a train takes a siding, extending between two adjoining telegraph stations, to be passed by one or more trains, the time at each end of the siding will be shown in full-faced type.

Where there are one or more trains to meet or pass a train between two times, or more than one train to meet a train at any station, attention is called to it by ———.

NOTE TO RULE 5.—The Committee recommends that each company adopt such method as it may prefer in filling the blank.

6. The following signs when placed before the figures of the schedule indicate:

"s"—regular stop.

"f"—flag stop to receive or discharge passengers or freight.

"T"—stop for meals.

"l"—leave.

"a"—arrive.

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Train Signals.

17. The head-light will be displayed to the front of every train by night, but must be concealed when a train turns out to meet another and has stopped clear of main track, or is standing to meet trains at the end of double track or at junctions.

18. Yard engines will display the head-light to the front and rear by night. When not provided with a head-light at the rear, two white lights must be displayed. Yard engines will not display markers.

19. The following signals will be displayed, one on each side of the rear of every train, as markers, to indicate the rear of the train: By day, a green flag. By night a green light to the front and side and a red light to the rear, except when the train turns out to be passed by another and is clear of main track, when a green light must be displayed to the front, side and to rear.

20. All sections of a train, except the last, will display two green flags, and, in addition, two green lights by night, in the places provided for that purpose on the front of the engine.

21. Extra trains will display two white flags and, in addition, two white lights by night, in the places provided for that purpose on the front of the engine.

22. When two or more engines are coupled to a train, the leading engine only shall display the signals as prescribed by Rules 20 and 21.

23. One flag or light displayed where in Rules 19, 20 and 21 two are prescribed will indicate the same as two; but the proper display of all train signals is required.

24. When cars are pushed by an engine (except when shifting or making up trains in yards) a white light must be displayed on the front of the leading car by night.

Classification of Trains.

81. Trains of the first class are superior to those of the second; trains of the second class are superior to those of the third; and so on. Extra trains are inferior to regular trains.

All trains in the direction specified in the Time-table are superior to trains of the same class in the opposite direction.

82. Regular trains twelve hours behind their schedule time lose both right and class and can thereafter proceed only by train order.

Movement of Trains.

83. A train must not leave its initial station on any division, or a junction, or pass from double to single track, until it has been ascertained whether all trains due, which are superior, or of the same class, have arrived or left.

84. A train leaving its initial station on each division, or leaving a junction, when a train of the same class in the same direction is overdue, will proceed on its schedule, and the overdue train will run as prescribed by Rule 91.

85. A train must not start until the proper signal is given.

86. An inferior train must keep out of the way of a superior train.

87. A train failing to clear the main track by the time required by rule, must be protected as prescribed by Rule 99.

88. At meeting points between trains of the same class the inferior train must clear the main track before the leaving time of the superior train, and must pull into siding when practicable. If necessary to back in, the train must first be protected, as prescribed by Rule 99, unless otherwise provided.

89. At meeting points between trains of different classes the inferior train must take the siding and clear the superior train at least five minutes, and must pull into the siding when practicable. If necessary to back in, the train must first be protected as prescribed by Rule 99, unless otherwise provided.

An inferior train must keep at least five minutes off the time of a superior train in the same direction.

NOTE TO RULES NOS. 88 AND 89.—The Committee recommends that where greater clearance is necessary, Rule No. 88 should require a clearance of FIVE minutes, and Rule No. 89 of TEN minutes.

90. Trains must stop at schedule meeting or passing stations, if the train to be met or passed is of the same class, unless the switches are right and the track clear. Trains should stop clear of the switch used by the train to be met or passed in going on the siding.

When the expected train of the same class is not found at the schedule meeting or passing station, the superior train must approach all sidings prepared to stop, until the expected train is met or passed.

91. Unless some form of block signals is used, trains in the same direction must keep at least five minutes apart, except in closing up at stations.

NOTE TO RULE 91.—The Committee recommends that where greater clearance is necessary, Rule No. 91 should allow a clearance of TEN minutes or more.

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92. A train must not arrive at a station in advance of its schedule arriving time.

A train must not leave a station in advance of its schedule leaving time.

93. A regular train which is delayed, and falls back on the time of another train of the same class, will proceed on its own schedule.

94. A train which overtakes a superior train or a train of the same class, so disabled that it can not proceed, will pass it, if practicable, and if necessary will assume the schedule and take the train orders of the disabled train, proceed to the next open telegraph office, and there report to the ———. The disabled train will assume the schedule and take the train orders of the last train with which it has exchanged, and will when able proceed to and report from the next open telegraph office.

95. A train must not display signals for a following section, nor an extra train be run, without orders from the ———.

96. When signals displayed for a section are taken down at any point before that section arrives, the conductor will, if there be no other provision, arrange with the operator, or, if there be no operator, with the switchtender, or, in the absence of both, with a flagman left there for the purpose, to notify all opposing trains of the same or inferior class leaving such point that the section for which the signals were displayed has not arrived.

97. Work extras will be assigned working limits.

98. Trains must approach the end of double track, junctions, railroad crossings at grade and drawbridges, prepared to stop, unless the switches and signals are right and the track is clear. Where required by law, trains must stop.

99. When a train stops or is delayed, under circumstances in which it may be overtaken by another train, the flagman must go back immediately with stop signals a sufficient distance to insure full protection. When recalled he may return to his train, first placing two torpedoes on the rail when the conditions require it.

The front of a train must be protected in the same way, when necessary, by the ———.

100. When the flagman goes back to protect the rear of his train, the ——— must, in the case of passenger trains, and the next brakeman in the case of other trains, take his place on the train.

101. If a train should part while in motion, trainmen must, if possible, prevent damage to the detached portions. The signals prescribed by Rules 12 (*d*) and 14 (*f*) must be given, and the front portion of the train kept in motion until the detached portion is stopped.

The front portion will then go back, to recover the detached portion, running with caution and following a flagman. The detached portion must not be moved or passed until the front portion comes back.

102. When cars are pushed by an engine (except when shifting and making up trains in yards) a flagman must take a conspicuous position on the front of the leading car and signal the engineman in case of need.

103. Messages or orders respecting the movement of trains or the condition of track or bridges must be in writing.

104. Switches must be left in proper position after having been used. Conductors are responsible for the position of the switches used by them and their trainmen, except where switchtenders are stationed.

A switch must not be left open for a following train unless in charge of a trainman of such train.

105. Both conductors and enginemen are responsible for the safety of their trains and, under conditions not provided for by the rules, must take every precaution for their protection.

106. In all cases of doubt or uncertainty the safe course must be taken and no risks run.

Rules for Movement by Train Orders.

201. For movements not provided for by time-table, train orders will be issued by authority and over the signature of the ———. They must contain neither information nor instructions not essential to such movements.

They must be brief and clear; in the prescribed forms when applicable; and without erasure, alteration or interlineation.

202. Each train order must be given in the same words to all persons or trains addressed.

203. Train orders will be numbered consecutively each day, beginning with No. —— at midnight.

204. Train orders must be addressed to those who are to execute them, naming the place at which each is to receive his copy. Those for a train must be addressed to the conductor and engineman, and also to any one who acts as its pilot. A copy for each person addressed must be supplied by the operator.

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205. Each train order must be written in full in a book provided for the purpose at the office of the ———; and with it recorded the names of those who have signed for the order; the time and the signals which show when and from what offices the order was repeated and the responses transmitted; and the train dispatcher's initials. These records must be made at once, and never from memory or memoranda.

206. Regular trains will be designated in train orders by their numbers, as "No. 10," or "2d No. 10," adding engine numbers if desired; extra trains by engine numbers, as "Extra 798," with the direction when necessary, as "East" or "West." Other numbers and time will be stated in figures only.

207. To transmit a train order, the signal "31" or the signal "19" must be given to each office addressed, the number of copies being stated, if more or less than three—thus, "31 copy 5," or "19 copy 2."

NOTE TO RULE 207.—Where forms "31" and "19" are not both in use the signal may be omitted.

208. A train order to be sent to two or more offices must be transmitted simultaneously to as many of them as practicable. The several addresses must be in the order of superiority of trains, each office taking its proper address. When not sent simultaneously to all, the order must be sent first to the superior train.

209. Operators receiving train orders must write them in manifold during transmission and if they can not at one writing make the requisite number of copies, must trace others from one of the copies first made.

210. When a "31" train order has been transmitted, operators must (unless otherwise directed) repeat it at once from the manifold copy in the succession in which the several offices have been addressed, and then write the time of repetition on the order. Each operator receiving the order should observe whether the others repeat correctly.

Those to whom the order is addressed, except enginemen, must then sign it, and the operator will send their signatures preceded by the number of the order to the ———. The response "complete," and the time, with the initials of the ———, will then be given by the train dispatcher. Each operator receiving this response will then write on each copy the word "complete," the time, and his last name in full, and then deliver a copy to each person addressed, except enginemen. The copy for each engineman must be delivered to him personally by ———.

NOTE TO RULE 210.—The blanks in the above rule may be filled for each road to suit its own requirements. On roads where the signature of the engineman is desired, the words "except enginemen," and the last sentence in the second paragraph may be omitted. If preferred, each person receiving an order may be required to read it aloud to the operator.

211. When a "19" train order has been transmitted, operators must (unless otherwise directed) repeat it at once from the manifold copy, in the succession in which the several offices have been addressed. Each operator receiving the order should observe whether the others repeat correctly. When the order has been repeated correctly by an operator, the response "complete," and the time, with the initials of the ———, will be given by the train dispatcher. The operator receiving this response will then write on each copy the word "complete," the time, and his last name in full, and personally deliver a copy to each person addressed without taking his signature.

212. A train order may, when so directed by the train dispatcher, be acknowledged without repeating, by the operator responding: "X; _____(Number of Train Order)_____ to _____(Train Number)_____," with the operator's initials and office signal. The operator must then write on the order his initials and the time.

213. "Complete" must not be given to a train order for delivery to an inferior train until the order has been repeated or the "X" response sent by the operator who receives the order for the superior train.

214. When a train order has been repeated or "X" response sent, and before "complete" has been given, the order must be treated as a holding order for the train addressed, but must not be otherwise acted on until "complete" has been given.

If the line fails before an office has repeated an order or has sent the "X" response, the order at that office is of no effect and must be there treated as if it had not been sent.

215. The operator who receives and delivers a train order must preserve the lowest copy.

216. For train orders delivered by the train dispatcher the requirements as to the record and delivery are the same as at other offices.

Such orders shall be first written in manifold so as to leave an impression in the record book, from which transmission shall be made.

217. A train order to be delivered to a train at a point not a telegraph station,

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or at one at which the telegraph office is closed, must be addressed to

"*C. and E.* ——— *(at* ———*), care of* ———,"

and forwarded and delivered by the conductor or other person in whose care it is addressed. When form 31 is used "complete" will be given upon the signature of the person by whom the order is to be delivered, who must be supplied with copies for the conductor and engineman addressed, and a copy upon which he shall take their signatures. This copy he must deliver to the first operator accessible, who must preserve it, and at once transmit the signatures of the conductor and engineman to the train dispatcher.

Orders so delivered must be acted on as if "complete" had been given in the usual way.

For orders which are sent, in the manner herein provided, to a train, the superiority of which is thereby restricted, "complete" must not be given to an inferior train until the signatures of the conductor and engineman of the superior train has been sent to the ———.

218. When a train is named in a train order, all its sections are included unless particular sections are specified, and each section included must have copies addressed and delivered to it.

219. Unless otherwise directed, an operator must not repeat or give the "X" response to a train order for a train, the engine of which has passed his train-order signal, until he has ascertained that the conductor and engineman have been notified that he has orders for them.

220. Train orders once in effect continue so until fulfilled, superseded or annulled. Any part of an order specifying a particular movement may be either superseded or annulled.

Orders held by or issued for a regular train become void when such train loses both right and class as prescribed by Rules 4 and 82, or is annulled.

221 (A). A fixed signal must be used at each train-order office, which shall indicate "stop" when there is an operator on duty, except when changed to "proceed" to allow a train to pass after getting train orders, or for which there are no orders. A train must not pass the signal while "stop" is indicated. The signal must be returned to "stop" as soon as a train has passed. It must be fastened at "proceed" only when no operator is on duty.

Operators must have the proper appliances for hand signaling ready for immediate use if the fixed signal should fail to work properly. If a signal is not displayed at a night office, trains which have not been notified must stop and ascertain the cause and report the facts to the ——— from the next open telegraph office.

Where the semaphore is used, the arm indicates "stop" when horizontal and "proceed" when in an inclined position.

NOTE TO RULE 221 (A).—The conditions which affect trains at stations vary so much that it is recommended each road adopt such regulations supplementary to this rule as may best suit its own requirements.

221 (B). A fixed signal must be used at each train-order office, which shall indicate "stop" when trains are to be stopped for train orders. When there are no orders the signal must indicate "proceed."

When an operator receives the signal "31," or "19," he must immediately display the "stop signal" and then reply "stop displayed;" and until the orders have been delivered or annulled the signal must not be restored to "proceed." While "stop" is indicated trains must not proceed without a clearance card (Form —— (A).

Operators must have the proper appliances for hand signaling ready for immediate use if the fixed signal should fail to work properly. If a signal is not displayed at a night office, trains which have not been notified must stop and ascertain the cause, and report the facts to the ——— from the next open telegraph office.

Where the semaphore is used, the arm indicates "stop" when horizontal and "proceed" when in an inclined position.

NOTE TO RULES 221 (A) AND 221 (B).—The Committee has recommended two forms of Rule 221, leaving it discretionary to adopt one or both of these forms according to the circumstances of the traffic.

222. Operators will promptly record and report to the ——— the time of departure of all trains and the direction of extra trains. They will record the time of arrival of trains and report it when so directed.

223. The following signs and abbreviations may be used:

Initials for signature of the ———.

Such office and other signals as are arranged by the ———.

C & E—for Conductor and Engineman.

X—Train will be held until order is made "complete."

Com—for Complete.

O S—Train Report.

No—for number.

Eng—for Engine.

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Sec—for Section.
Psgr—for Passenger.
Frt—for Freight.
Mins—for Minutes.
Jct—for Junction.
Dispr—for Train Dispatcher.
Opr—for Operator.

31 or 19—to clear the line for Train Orders, and for Operators to ask for Train Orders.

S D—for "Stop Displayed."

The usual abbreviations for the names of the months and stations.

GENERAL NOTE.—Blanks in the rules may be filled by each road to suit its own organization or requirements.

C. & N. W. Rules.

In the November MAGAZINE we gave a brief review of the new rules on the Chicago Great Western. We have recently had opportunity to examine the code adopted during the past year by the Chicago and North Western Railway. It is interesting to note the difference in these two sets of rules, although each is modeled after the Standard Code and the essential features of each are the same. The former, as we have stated, is the Standard, almost in its purity, while in the latter there is a considerable addition to many of the rules, and many new ones are inserted.

Signal Rules.—Under this head we find several additions to Rule 19, one of which provides for indications in the cupola of each caboose which shall show the number of the train and which section, if there be more than one, or "EXTRA" if such be the case.

Classification of Trains.—Rule 81a is as follows:

"At meeting points, extra trains as regards each other are superior in the direction in which regular trains are superior."

This means that when extras meet on single track, the one going in the direction in which regular trains are inferior must take the siding, a provision not made in the Standard Code.

Movement of Trains.—

Rule 83. A train must not leave its initial station on any division or a junction, or pass from double to single track, until it is ascertained whether all trains due, which are superior, or of the same class, have arrived or departed. This information will be furnished the engineman by the conductor on a regular blank provided for that purpose.

Rule 83a. All trains running on double track must keep to the left. Trains will run on more than two tracks under special regulations.

From the latter clause in rule 83 it would appear that the engineer is relieved from checking the register. The provision in rule 83a for trains on double track to keep to the left is a little peculiar in America.

Rule 90a. When trains meet by special order or time table regulations, conductors and enginemen must inform each other what train they are. This must be done by word of mouth.

This is an addition to the Standard Code and makes a definite provision for identification of trains when meeting. This is an important matter, though in many codes it is not provided for.

Rule 92. It must be understood that a train is due to arrive at a station upon its schedule departing time at preceding station.

A train must not leave a station in advance of its schedule leaving time.

This rule states definitely what is usually implied with regard to the time a train may be expected to arrive at a station where no arriving time is shown.

Rules 93 and 96 are more explicit than the Standard. They are as follows:

Rule 93. A regular train, which is delayed, and falls back on the time of another train of the same class, will proceed on its own schedule, but unless it can avoid delay to the following train, it will allow it to pass when overtaken.

A train which passes another under such circumstances will report the fact to the train dispatcher at the next open telegraph office.

Rule 96. When signals displayed for a section are taken down at any point before that section arrives, the conductor will, if there be no other provision, notify the operator or agent in writing, who will immediately display the train order signal, and keep it in danger position for the benefit of opposing trains, until the arrival of the train so flagged, and he must personally see that opposing trains are fully notified. If the signals displayed for a section are taken down where there be no operator or agent, a flagman must be left there for the purpose of notifying all opposing trains of the same or inferior class leaving such point, that the section for which the signals were displayed has not arrived. Conductors and enginemen taking down signals for a following section as above must not rely solely on notice being given at said station, but must themselves notify other trains met until they arrive and register at the next registering station.

From the latter part of rule 96 we infer that if signals are taken down at a point where there is no register the fact is to be recorded at the next register station.

Rule 97 contains a provision covering a change of working limits. It is as follows:

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Rule 97. Work extras will be assigned working limits by train order daily.

Rule 97a. If a subsequent order to go to other parts of the road be received, the original order expires and must not be used again.

In case orders should be given to a point outside of the working limits for water, fuel, or any other cause, and it be desired that the "working order" should not be cancelled, the subsequent order should state that the working order (giving proper number and reference) will remain valid.

Clearance and Release Cards.—The form and use of the clearance card does not follow the recommendation of the Standard Code. In addition to terminal stations, junctions and points where train orders or a clearance are usually required, the rule applies, for freight trains, to all open telegraph offices, and for passenger trains to such stations as are regular stops. In other words, a train must receive orders, or a notice from the operator that there are no orders, at every open telegraph office, the only exception being in the case of passenger trains at stations which are not regular stops. A "clearance card" is used when there are no orders and the signal is clear, but when a train is to be cleared and it is impossible to clear the signal a "release" card instead of a clearance card is issued. This release card permits a train to pass a "stop" signal and shows for what purpose the signal is in that position. A lengthy addition to rule 98 gives instructions for the use of these cards.

Rule 99, which is compressed into a few lines in the Standard Code, covers almost two pages of this book and goes into detail with regard to protection of trains by flagging.

Rule 101, relating to trains breaking in two; rule 102, providing for cars being pushed by the engine, and rule 104, regarding the proper position of switches, have all been enlarged by additions and are much more explicit than the corresponding rules in the Standard Code.

Train Movements by Orders.—Under this heading we find a number of variations. Rule 206 is as follows:

Rule 206. Regular trains will be designated in train orders by their train numbers, engine numbers and conductors' names, written in words and figures as "No. Ten 10," or "2nd No. Ten 10, Eng. 504, Smith;" extra trains by engine numbers and conductors' names, as "Extra 798, White," with the direction as North, South, East or West. Time in body of the orders must be written in words and duplicated in figures. Figures must not be surrounded by brackets, circles or other characters, but appear plainly without accompanying marks.

Rule 208a requires that time orders and "meet" orders shall be sent to the operator at the meeting point, he to deliver copies to the first of the trains to arrive.

The use of "12" and "13," familiar to many, is prescribed in the following rules:

208c. The numerical abbreviation "12" will be used at the end of a train order immediately preceding the signature. "12" signifies: "Do you acknowledge receipt of this order, and do you fully understand it?"

208d. In responding to train orders, conductors or others will use the abbreviation "13." "13" signifies: "I hereby acknowledge the receipt of, and state that I fully understand and will execute."

As an additional safeguard in the execution of orders we find the following:

Rule 211. Conductors must show their orders to rear brakeman or flagman, and the engineman to the fireman, and (in case of a freight train) to the head brakeman, who are required to read them.

We find that instead of the word "Complete," now so generally used on train orders, these rules authorize the use of the letters "OK." The "19" form of order is not used. The train order signal is used according to rule 221b, the normal position being clear.

Forms of Train Orders.—These follow the Standard closely. We note the chief points of difference.

Form B omits example 2, which permits a train to pass another when overtaken. We think this is one of the most valuable applications of this form.

We quote Form H in full.

Form H.—Work Extra.

EXAMPLES.

(*1*) *Work extra 292, Smith, will work seven 7 a. m. until six 6 p. m. between Berne and Turin.*

The working limits should be as short as practicable, to be changed as the progress of the work may require. The above may be combined thus:

(*a*) *Work extra 292, Smith, will run Berne to Turin and work seven 7 a. m. until six 6 p. m. between Turin and Rome.*

When an order has been issued to "work" between designated points, no other extra shall be authorized to run over that part of the track without a definite meeting order with the work extra.

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When it is anticipated that a work extra may be where it can not be reached for orders, it may be directed to report for orders at a given time and place, and a meeting order issued with other extra.

To enable a work extra to work upon the time of a regular train, the following form may be used:

(b) *No. fifty-five 55 engine 342, Jones, will wait at Berne until six 6 p. m. for work extra 292, King.*

A work extra receiving this order will work upon the time of the train mentioned in the order as per rule 89.

A train receiving this order must not pass the designated point before the time given unless the work extra has arrived.

It will be seen that this, unlike the other forms and rules, is shorter than the Standard. It makes no provision for a work train to protect against any other train, but requires a meeting order with other extras and a time order to work on the time of a regular train.

Schedule for Delayed Trains.

This form of order, which is not authorized by the Standard Code, is, we think, growing in favor. It was described in the MAGAZINE for August, 1901, page 414, and August, 1902, page 220. We are informed that it is used by the Canadian Pacific in the following words:

"No. 1 will run late as follows:
Leave A. 8.20 a. m.
B. 8.30 a. m.
C. 8.40 a. m.

We are not informed whether a subsequent order directing the train to run so much later than the time mentioned in the first order may be issued or not. We consider that this second provision is quite as essential as the first.

Aside from the system mentioned we understand that such a form is in use on the Union Pacific under slightly different wording. Are there any others? We shall be glad to hear from our readers if they can give any information along this line.

The Telegraphone.

This invention, by which a telegraph wire may be used for telephone purposes, is to be installed on an important Eastern road. Baggage cars, cabooses and engines are to be supplied with instruments so that the regular telegraph wire can be tapped at any point on the road and communication with the dispatchers' office or some telegraph office be obtained.

We are glad to hear of any device which will avoid delay to trains and it would seem that this invention, if a success, would more than pay for its cost on divisions where there are not many night offices and where long delays to trains are frequent.

Questions and Answers

The Westinghouse Air Brake.

Answers by F. B. Farmer.

136. Equalizing Reservoir Leakage Report.—"Kindly inform us through the MAGAZINE which is the proper 'term' or way to report the following defect of a D-8 brake valve.

"The brake valve in question will not equalize while coupled to three or more cars, due to a slight leak in the equalizing connections, which acts the same as preliminary exhaust when brake valve is placed on lap position.

"'A' claims that this brake valve 'will not lap,' while I claim that any brake valve will lap when one places the valve on lap position, providing the rotary and gasket '32' are known to be tight, as they were in this case.

"I claim that this defect should be stated: 'Equalizing piston will not seat. Examine equalizing connections for leaks.' Who is right?"—*M. E. S.*

Answer.—Your suggested report is the better of the two and should make the character of the defect clear to any well informed repairman. At the same time, if "A" will add to the report he proposed, "Examine equalizing connections for leaks," it would also serve the purpose.

It is true that any valve is on lap when the handle is on the position so named, but as lap is where all ports should be closed, including the service exhaust port after the train pipe pressure has fallen to what the equalizing reservoir pressure was reduced to, then so far as correct operation is concerned, the valve will not lap. Yet this bare statement would be too little and indefinite; for, as you imply, such a report might mean a leaky rotary. It would also be indefinite if the report merely

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stated, "Equalizing piston will not seat," as the fault considered, a leak from the equalizing reservoir pressure, would not prevent the piston from seating with the valve in either release or running position.

It would be better yet to locate the leak (in the brake valve gasket to the black hand, the pipe to the equalizing reservoir or in the latter) and report just where it existed if not possible to remedy on the road.

There are two rare locations generally difficult to determine. One is a cracked train pipe pressure gauge tube and the other is where the leakage past the leather gasket in the brake valve escapes around one of the four bolts. The writer has never known the latter to exist except with the brake valves following the D-8 style.

137. Difference Between G-24 and F-25 Triple Valves.—"Please explain what difference there is between Plate G-24 and Plate F-25 triple valves. Both seem to be the same size valves. Also, explain what size auxiliary reservoir and main reservoir should be used with these valves to give the best results."—*E. J. H.*

Answer.—The general appearance of the G-24 and F-25 triple valves is the same inside and outside, but the F-25 valve is the larger of the two, as it is intended for use with larger auxiliary reservoirs and triple valves than is the G-24 triple.

The following gives the diameter of cylinder, with accompanying style of triple and size of auxiliary reservoir for use with ordinary driver and tender brakes:

Diameter of Cylinder.	*Style of Triple Valve.*	*Size of Auxiliary Reservoir.*
8 in.	F-24 or G-24	*10 in. x 24 in.
10 in.	F-24 or G-24	12 in. x 33 in.
12 in.	F-25	14 in. x 33 in.
14 in.	F-25	16 in. x 33 in.
16 in.	F-25	16 in. x 42 in.

*The 10-inch by 24-inch reservoir with F-24 or G-24 triples is also used with two 6-inch driver brake cylinders. Two 8-inch driver brake cylinders use either of these triples, but a 10-inch by 33-inch reservoir.

The size of main reservoir which should be used ought to be determined by the largest number of air brake cars ordinarily handled in one train. Speaking generally, there should be at least 1,000 cubic inches of main reservoir for every ten air brake cars. However, the grade worked on has much to do with this. Also the minimum for any locomotive should be at least 14,000 cubic inches, and the writer is inclined to favor a maximum of 60,000, or, at the most, 70,000 cubic inches.

138. Triple Leaks at Exhaust with Brake Fully Applied.—"Westinghouse quick action triple valve works perfect in service stop, but when pressure in train line gets lower than auxiliary pressure, it blows through the exhaust. What is the defect?"—*S.*

Answer.—The travel or movement of the slide valve of both this and the plain triple is less up to the point of full application than it is when this is exceeded, in this being similar to the valves of a locomotive when a 12-inch cut-off is compared with the reverse lever in the "corner."

As comparatively few stops require full application, the most wear on the slide valve seat is with the short travel. The resultant high spots lift the slide valve at full travel and cause the blow at the exhaust port, as described. This, again, is similar to a locomotive which, after long service in, say, the 6-inch notch, blows when the lever is dropped to 10 inches cut-off.

139. Silent Brake Release.—"I was running an engine fitted with plain triples on both engine and tender. I set the brakes, and as long as I kept the brake valve blanked the brake would stay set, but as soon as I would put handle in release position, brake would release, but no air would escape from exhaust port in triple. Where did the air go from brake cylinder?"—*A. A. B.*

Answer.—If the engine was one fitted with the Combined Straight Air and Automatic Driver and Tender Brake and you were using the straight air brake valve the brake cylinder pressure escaped through it. If not, and the triples had no pressure retaining valves connected, such carrying the discharge from the exhaust ports to the retaining valves, would say that the brake cylinder pressure had leaked down so low before release as to make comparatively little noise when the remaining pressure escaped.

140. Peculiar Equalizing Discharge Action.—"I had a train that when I made the first reduction I would get a long train line exhaust. The second I would get no train line exhaust, but brakes did not go into emergency. All reductions after the second had a good train line exhaust. They did that clear over the division. Please explain what was the cause."—*A. A. B.*

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Answer.—The most probable explanation of this peculiar action seems to be that there was considerable train pipe leakage, that the equalizing piston packing ring was a good fit and that between the time of making the first and second reduction the train pipe pressure had leaked sufficiently below that in the equalizing reservoir that the second reduction did not reduce this latter pressure below that in the train pipe.

Similar failure to discharge following subsequent reductions can only be explained on the grounds that the fall in pressure from leakage was less rapid with lower pressure, the time between reductions was not as great and the amount of such reduction was greater.

With the first of the modern brake valves a leakage can develop from main reservoir pressure into the space above the equalizing piston, but is rare and results from slack bolts on the main reservoir side of the valve. If such leakage existed it could at least aid in causing the action described.

141. Small Air Motor.—"I would kindly ask through the columns of your very valuable MAGAZINE for a design of very simple constructed air motor, light enough to use by hand; one that will revolve very rapidly. I have seen several illustrated, but none but what would require considerable expense and rather complicated. The power desired would be equal to that necessary to drive an ordinary wood screw."—*J. A. J.*

Answer.—The writer regrets being unable to give advice about such a motor as desired or where the information might be obtained, but it is hoped that by publishing the request some reader will supply you with the desired information.

NOTE.—Owing to delay in obtaining some necessary information, a few questions received could not be answered this month, but will be in the March number.

♦ ♦ ♦

Locomotive Running and Repairs.

Answers by G. W. Wildin.

[Lines 27 to 37 inclusive, Question 42, page 771, of the December, 1902, issue of the MAGAZINE, should read as follows, and not as stated in the January, 1903, MAGAZINE:

"Assuming the weight in all cases to be what it should be, the pulling capacity of a locomotive is determined by the following formula: $\frac{d^2 \times S \times P}{D}$, in which 'd' represents the diameter of cylinder in inches; 'S' the length of stroke in inches; 'P' mean effective pressure in pounds (usually taken as 85 per cent. of boiler pressure), and 'D' the diameter of driving wheels in inches," etc.

53. Moran Flexible Joint.—"How does the automatic drain valve in the Moran steam heat joint operate?"—*W. F. B.*

Answer.—By referring to Fig. 1 it will be seen that the automatic drain valve is

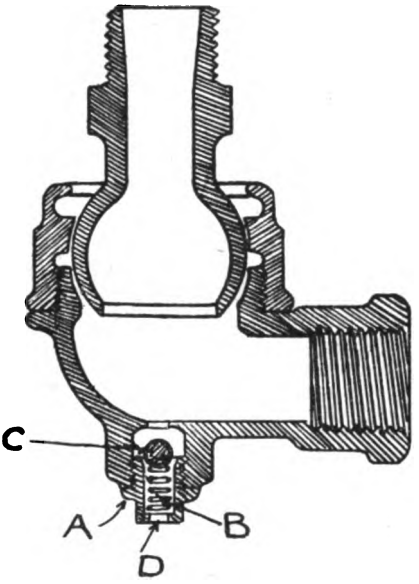


Fig. 1. Moran Flexible Joint.

composed of a cap, "A," a spring, "B," and a ball, "C." When no pressure is in the pipe the spring "B" lifts the ball "C" from its seat on the upper end of cap "A," allowing all moisture which may have collected in the pipe to pass by the ball valve and to the atmosphere through the small hole "D" in the lower part of cap "A." When steam pressure is again admitted in the pipe, valve "C" is forced to its seat on cap "A" and prevents the escape of steam from the pipe to the atmosphere.

54. Detecting a Blow Due to Valve Strips.—"I would like to know if it is possible to tell which valve strip is blowing and how to find out which side of the engine it is on."—*W. H. M.*

Answer.—It is not possible to tell just which valve strip is causing the blow, but it is possible to detect a blow due to worn or broken valve strips, and also to tell which side the defect is on.

I will ask W. H. M. to read the answer given to question 34 in the November is-

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sue of the MAGAZINE, together with the correction as outlined in the December number. By so doing I think he will get the information he desires.

55. Power of an Engine to Turn the Wheels When on Dead Center.—"How much power has the piston and crosshead to turn the crank pin when the centers of the wrist pin, crank pin and main driving axle are in one and the same straight line?"—*W. F. B.*

Answer.—On that side of the locomotive with the wrist pin, crank pin and driving axle in the relative position outlined above, there is no power or tendency whatever to revolve the crank pin. On the opposite side, however, where the crank pin is either on the top or bottom quarter, full power is exerted to revolve same.

56. Getting an Engine to the Terminal with the Valve Yoke on One Side and Cylinder Head on Opposite Side Broken.—"If the valve yoke on the right side of an engine should be broken and the front cylinder head on the left side blown out, how would you arrange to get the engine to shops?"—*W. G. D.*

Answer.—There are two ways of preparing an engine disabled as above in order that same may be brought to the shops under its own steam.

The first, and preferable, way of handling such a breakdown would be to block the valve on the right side in a central position, covering all ports, at the same time disconnecting the valve rod from the upper end of rocker arm. Then remove the cylinder head from right cylinder and apply it to the left, taking the place of the one blown out. With this arrangement the engine could be taken to the terminal and shops under its own steam, and with about one-half the original tonnage.

This method, of course, assumes that the cylinder studs were not broken when the head was blown out. Should the studs be found broken in the left cylinder the right head could not be transferred, and we would have to resort to method No. 2, which is as follows: Transfer the left valve yoke to right valve, blocking left valve centrally, covering all ports, and proceed to destination with right side working, hauling about half tonnage.

57. Description of Piston Valves.—"Describe the piston valve and state how it differs from the ordinary slide valve."—*W. F. B.*

Answer.—The piston valve is essentially a spool with enlarged ends, each end being provided with two packing rings. One of these rings regulate the flow of steam to and the other the exhaust from the cylinder. Thus the packing rings perform the same work as the exhaust and steam edges of the slide valve.

As the name implies, piston valves are circular in form and work to and fro in a bushing inserted at each end of the steam chest. Piston valves differ from ordinary slide valves in form only, and not in function. They are provided with packing rings, but no balance strips, which is the reverse with slide valves. No valve yoke is used in connection with the piston valve; a staight rod passing through the body of the valve makes suitable connection to the ordinary valve rod. Slide valves will lift from their seats when excessive pressure is applied from beneath, which is not possible with piston valves; hence the difference in effect upon engine equipped with piston valves when compression is developed.

58. Working of Piston Valves.—"Do all piston valves work the same?"—*W. F. B.*

Answer.—All piston valves do not work the same. They are divided into two general classes, one of which is designated as the internal and the other as the external admission type. Each class or style derives its name from the manner in which steam is admitted to and exhausted from the cylinder. With internal admission valves the live steam is confined between the two heads and is admitted to the cylinder by the inner rings, and exhausted from it by the outer rings; the reverse being the case with external admission valves.

It will be seen, then, that the operation of the external admission type more nearly corresponds to that of the ordinary slide valve than does the working of the internal admission valve.

59. Locating the Trouble when Cars do not Heat Properly and Steam-Heat Gauge on Engine Shows Proper Pressure.—"If the steam-heat gauge on engine registers the proper pressure and cars are not being heated properly, how would you proceed to locate the trouble?"—*W. F. B.*

Answer.—It being assumed that the steam-heat gauge is in good working condition, go to the rear of tender and examine train pipe valve in same to see that it is wide open, as it should be, and that steam is being delivered to the coaches at that point; then examine each coach separately from front to rear to see that

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the train pipe valves are in proper position. After the above course has been pursued and the trouble still exists the train pipe will probably be found clogged at some point. The particular coach having the defect may be located by examining each from front to rear of train, noting the first one found operating unsatisfactorily.

60. Steam-Heat Reducing Valve.—"How does the steam-heat reducing valve control the pressure?"—*W. F. B.*

Answer.—Such questions as the above can be answered more intelligently by referring to some figure having letters to designate parts, etc. Fig. 2 shows a type of valve in common use for reducing pressures, not only steam, but other gases as well. It serves to illustrate in general the principles upon which reducing valves work.

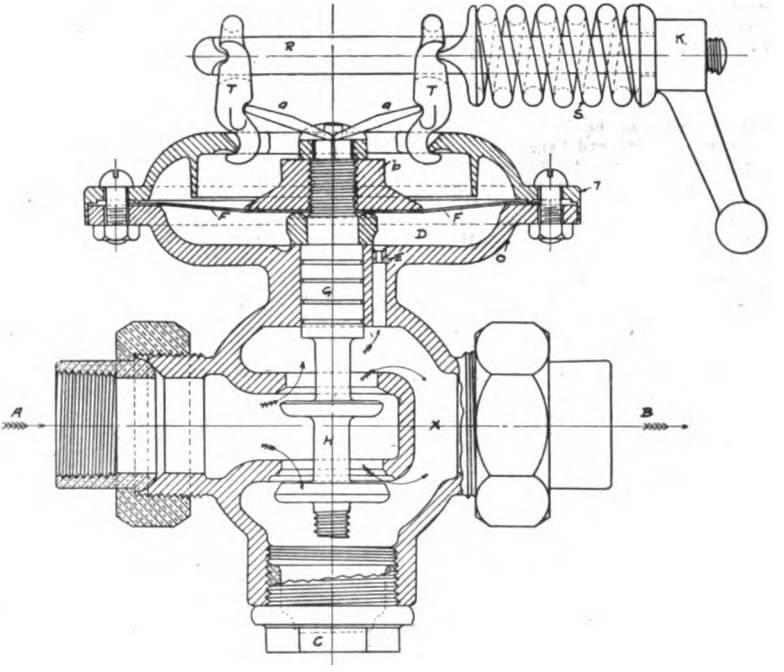


Fig. 2. Steam-Heat Reducing Valve.

Valve "H" is in its normal position when off its seat, as shown in the figure, being held in this position by pressure applied through spring "S" and a system of levers as illustrated, the desired tension being given spring "S" by screwing down on thumb piece "K." A diaphragm, "F" "F," is secured to the stem of valve "H," the outer edge of which is clamped between cap "T" and body "O," making a steam-tight chamber of "D." Steam from the boiler enters the valve at "A," passing under the valve seat to chamber "X" and to train line "B." At the same time steam passes to chamber "X" it also passes to chamber "D" through the small port "E" and to the under side of diaphragm "F" "F." When steam has accumulated in the train line and chamber "D" to the proper pressure, diaphragm "F" "F" is forced upwards, partially seating valve "H," reducing the supply of steam just enough to maintain the desired pressure and quantity of steam for heating purposes. As the pressure in the pipe "B" is reduced again spring "S" forces the diaphragm down again and with it valve "H," unseating same, permitting the flow of steam to increase.

61. The Blow-Off Cock.—"Explain the construction and operation of the blow-off cock."—*W. F. B.*

Answer.—The different types of blow-off cocks are many and varied, ranging from an ordinary plug valve to a pneumatic affair with some considerable mechanism. Not knowing what particular kind of blow-off cock the questioner wishes information concerning, his question may not be answered to his entire satisfaction. It is more than likely the pneumatic type is intended.

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The general principles upon which pneumatic blow-off cocks are constructed are as follows: An inner or check valve is so arranged as to be kept seated by boiler pressure and prevents water from escaping to the atmosphere. Against this valve rests the stem of an air piston, which is confined in a small cylinder over the check valve. To the cylinder containing the air piston a pipe is attached and connects with some pipe on the engine leading to the main reservoir pressure. In this connecting pipe is placed a cut-out cock. When air is turned into the air cylinder of the blow-off cock from the main reservoir the piston is forced down, unseating the check valve against boiler pressure, allowing the water to escape.

62. **Grease Cups.**—"Explain the principle of the grease cup, and what is the objection to using water on a hot pin when grease is used?"—*W. F. B.*

Answer.—The principle upon which the grease cup depends for its operation is that of hydraulics; it is pressure and compression, coupled with expansion. The cup is filled with grease; then the cover is applied and the plug screwed down, subjecting the grease to considerable pressure, forcing same through the small hole in lower part of the cup and to the pin. When the plug is screwed down the grease in the cup is slightly compressed, and the expansion which takes place in the grease as pressure is gradually reduced by the consumption of the lubricant on the pin is sufficient to maintain a slight flow of grease for some considerable time.

As a general principle, water should not be used on hot pins at all. When it is used it should be only as a last resort, and under these conditions could be used the same in connection with grease cups as with ordinary oil.

♣ ♣ ♣

Train Rules and Train Practice.

Answers by H. A. Dalby.

81. **"Right" Orders.**—"Odd numbers run west, even numbers east. East-bound have right of track by time card.

"'Order No. 5: No. 1 has right over No. 4 G to F.' Arriving at M No. 1 receives order No. 7: 'No. 1 will meet No. 4 at C.' Arriving at C No. 1 receives order No. 10: 'Order No. 7 is annulled.' Can No. 1 proceed to F with right of track as given her by order No. 5? What about No. 4?"—*C. A. T., Forsyth, Mont.*

Answer.—The American Railway Association has ruled that a train, having been given right over another between certain points, holds that right until it is fulfilled, superseded or annulled. If a meeting point is afterward made at a station between the points named in the order, the train to which the "right" was given remains the superior train. It naturally follows that if the "meet" order is annulled the "right" order remains in effect.

82. **Second Section Annulled.**—"An extra gets orders to run from A. to D. D is an intermediate turn-around point. The extra held orders that first No. 1 will run two hours late and second No. 1 will run four hours late. First No. 1 arrives at D not carrying signals. Extra gets orders to run from D to A and has time to make C for second No. 1. Second No. 1 falls down on another division east and does not run. How would the extra be governed? Some men claim they would not require the annullment of second No. 1, as first No. 1 did not carry signals and that the order concerning second No. 1 did not concern the extra on the return trip. Others say they would require it."—*R. H. C., Rat Portage, Ont.*

Answer.—The orders held by the extra do not agree with the signal indications, or the absence of them, on first No. 1. Therefore some explanation was due the train which held the time on second No. 1. If we were running the extra we should inquire of the dispatcher concerning the fact that No. 1 displayed no signals and if informed that there was but one section we should not ask for the annullment of the second section. All we should desire would be to know that there was no mistake in the absence of signals on first No. 1.

83. **Clearance Cards.**—"Is it customary to issue a terminal clearance at intermediate turn-around points? They are not used here at those points."—*R. H. C., Rat Portage, Ont.*

Answer.—We think it is customary to designate on the time-table such places as trains are required to obtain orders or a clearance, and such designated points are usually initial points for all trains or for certain trains, or important junction points.

The line from which this question comes, the Canadian Pacific, has a form called the "Terminal Clearance," and it is this to which the question refers. From its name we should suppose that it is necessary for a regular train to receive this form of clearance before leaving its initial point. Whether an extra leaving a district terminal or leaving an intermediate (or "turn-around") station should receive one in addition to its orders would be determined by the division officers, but our opinion would be that in the case mentioned by our correspondent it would not be issued.

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Locomotive Lubrication.

MR. ROESCH (T. E., C. & S. Ry.): In speaking of the frequency of hot driving boxes as compared to regular engine truck boxes, let us look at the various causes which may contribute toward this result.

Through the courtesy of our Mechanical Engineer, Mr. Kessler, I obtained the sketches here shown (Figures 1 and 2) drawn by Mr. E. Saylor.

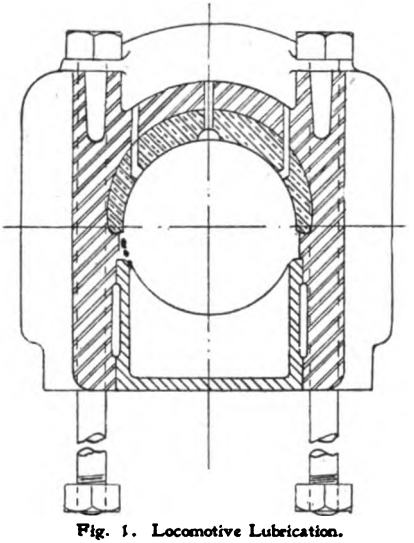


Fig. 1. Locomotive Lubrication.

Figure 1 shows a section through an ordinary driving box with underhung springs. You will notice how the weight is carried on the sides of the box—helping that pinching action spoken of previously. This form of spring suspension also allows the weight to be entirely supported on but two corners, producing a twisting strain, and, of course, a hot box. This type of box is notorious for running hot. The type that has a crooked hook-shaped hanger is not much better.

Another point I wish to call to your attention is, this brass, as you know, is put in under pressure; this compresses the brass on the inside. As it wears, the strain is relieved, allowing the brass to close on the journal; at the same time, a sharp edge is being worn on the brass. This edge, and it need be but one-eighth inch wide, acts as a nice little cutting tool or scraper to scrape the oil off the journal—a dry spot only one-eighth inch wide is enough to produce a hot box.

A word in regard to side oil holes. Notice them. They are in the very best location to carry grit to the journal, and when this brass becomes slightly loose, the oil, instead of flowing down to the journal, will simply follow the box and flow between it and the brass, and never touch the journal at all.

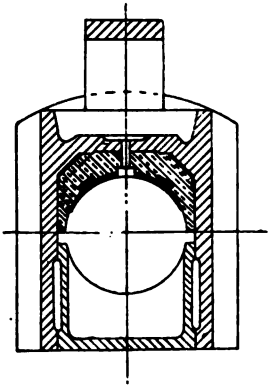


Fig. 2. Locomotive Lubrication.

Now take a look at the engine truck box, as shown here (Figure 2). Notice the babbit bearing, small bearing area, flat surface on top of brass, with spring saddle pressing straight down on it. No pinching action here; no care here; no particular attention, and very few hot boxes. I believe that here is a chance to learn something. Let us determine which it is—the bearing metal or the fitting, and, once decided, let us adopt it.

Most of us have seen engine truck brasses, old style, applied, having two babbitt strips projecting about one-eighth inch. These took all the weight. Think of it!—the weight resting on two little three-quarter-inch strips, or over 1,000 pounds per square inch, and yet this bearing ran cold. Looks mysterious, does it not? Yet there is nothing mysterious about it. We are too prone to look at some things as due to some mysterious agency, and at others as inevitable. Let us quit this line of non-reasoning, and dig for facts. When we find anything right, find out why; and, when wrong, correct it.

To give you a better idea of the growth of the modern locomotive, we show here (Figure 3) a comparison of the cylinder and journal areas of a 22x28 and 17x24 engine.

The outer lines show the area of a

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22x28 cylinder wall. Now, how much good do you think one drop of oil would be on a surface like this—yes, or ten drops? The parallelogram within this is the 17x24 cylinder. Note the increase—over 50 per cent. Same amount of oil, though, is supposed to lubricate each.

show that they are making from thirty-five to forty-five miles per pint of oil. Clearly, the way to improve or save in oil is to follow up the shop consumption.

An extreme case came up to me last winter, when a storekeeper called my attention to the fact that the foreman of

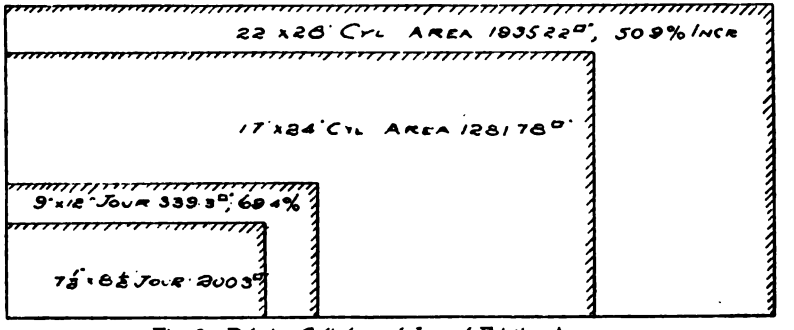


Fig. 3. Relative Cylinder and Journal Friction Areas.

The larger figure in the left-hand corner shows the journal area of a modern engine. The smaller one within it is that of the 17x24 engine. Note this increase—over 69 per cent.

MR. G. W. RHODES (Assistant General Superintendent B. & M.): The principal thing that we have done to excite interest is that we allow our men one pound of new waste without any charge if they return two pounds of old waste of a quality good enough for packing purposes, and it is quite surprising what an effect that has in the use of waste. I was interested in the matter because, when this started, some years ago, the other end of our line at Chicago—the C., B. & Q. portion of the Burlington—heard of it and did not think much of the idea. The General Auditor recently sent me a copy of a letter that he wrote to the Superintendent of Motive Power, mentioning the above facts, but adding that he now finds that the performance of the B. & M. railroad in the matter of miles to the pound of waste is so far outstripping the other portions of the system that they ought to start something of the same kind.

I do not believe we realize fully the extent oil is used wastefully about the railway. If I were a master mechanic, and really wanted to improve my oil record, I would not bother much about the engineers and firemen. The shops and roundhouse charge is what spoils our oil record. On one of our divisions, where we have the poorest oil record for lubricating oil, we only get sixteen miles per pint of lubricant. On the same division the individual records of the engineers the roundhouse was drawing new waste at 6 cents per pound, and new oil for starting up the fires in the fire boxes. When his attention was called to it and he was asked whether it was not a little extravagant, he said, No, that it was the only way they had to start fires.

I was asked, this week, by a gentleman who was traveling with me, why it was that whenever an engine started up that the engineer allowed the engine to make half a dozen revolutions before he opened the cylinder cocks. We observed this in case after case as we passed freight trains, side-tracked for the passenger train. The sidings being short, the freight trains had to start up before we could pull past. In one case we were so close we observed a deluge of water thrown out of the stack of the engine; after that the cylinder cocks were opened. The water having all gone out through the stack, the question naturally arose as to what was the use of opening the cylinder cocks after you had got rid of the water. The reason for opening the cylinder cocks first is to get rid of the water before it washes any of the parts of the steam cavities. There is nothing accomplished by opening the cylinder cocks after the water has all been blown out through the stacks; we simply waste steam, and consequently, coal and power. Traveling engineers should look after this.

MR. M. E. WELLS (Master Mechanic B. & M., Sheridan, Wyo.): I find, from my experience in the shops, that men get pedestal braces and oil cellars down and, having a great deal of trouble getting them up, are constantly bringing them to

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the shop to have them planed off. This proves to me that the bottom of the driving box and the pedestal jaws in the frames are continually coming together, which is a very bad thing. Driving boxes and shoes and wedges should be put up parallel and should be allowed to remain in that way and not changed, as is found necessary when these cellars and pedestal braces have to be reduced in order to get them up. The driving box, closing in at the bottom, starts a pound that I think always precedes a pound in the driving brass. I think, if possible, driving box cellars and pedestal braces should go up when an engine is turned out of the shop and should stay up until the engine comes in again. In order to do this it will be necessary to devise some scheme of packing the driving box cellar without removing it. The plate on the inner end has been tried, but it has been found that the tap bolts holding the plate work loose very easily, and, take it all in all, are not very satisfactory. The idea has recently come to me to try one, or possibly two, plugs about two and one-half inches in diameter that would screw into the inside end of the driving cellar, as a washout screws in the boiler. This would certainly be a great improvement over the lid fastened with tap bolts. I will go so far as to say that I believe on the main drivers the eccentrics should be set in on the shaft far enough to admit of removing and replacing this plug in the end of the cellar, which would admit of it being packed without being removed. I am aware that it would necessitate the changing of the valve gear quite a little, but I really think it would pay to do it. It is a very bad practice, continually taking down oil cellars and pedestal braces and then planing them off in order to get them back in place. I agree with Mr. Roesch that driving brasses should never pinch on the center line of the journal.

I find that the fellows who are always pouring valve oil on the top of the driving boxes are always having lots of trouble, and this is how their trouble occurs. The valve oil being placed on the top of the box will undoubtedly help some while the box is hot, but the engine going into the roundhouse and standing over night will give a chance for this oil to get cold, and it practically makes a mat—an impenetrable mat—of valve oil and waste over the top of the box, and, in many cases, fills the oil hole with cold valve oil. Whether the box is packed from the bottom, or in the cellar or not, before the brass can get any lubrication from the top on the next trip, it is necessary for it to heat up sufficiently to melt this valve oil, and I believe that this is the source of a great deal of trouble to enginemen.

Another thing is the habit enginemen have of raising waste off the top of the box with the oil can spout. All this does is to allow dirt to get closer to the oil hole and go down onto the journal. The waste is put on the top of the driving box as a filter, and should be left alone. If it gets a little gummy and sticky, a small quantity of coal oil will loosen it up so oil will penetrate through it.

It has occurred to me that driving brasses are bored out too much in the crown in order to get the lips of the brass at or below the center of the driving journal. I am quite sure it is not necessary for the brass to bear at or near the center of the journal, and if this is true, there is no reason why the brass can not be bored, leaving as much as possible in the crown. I am aware of the difficulty of calipering the size of the journal in the brass, but this difficulty is overcome very easily by driving a stick of babbitt endwise in the box, so that you can caliper the size of the journal from the crown of the brass to the tool mark in the stick of babbitt. This is the practice on the Northern Pacific, and I believe is a very good one.

On the subject of lubrication I want to speak about the expansion plates that connect the boiler with the frames. From the lubricating standpoint, these things are very much neglected. They should be oiled thoroughly, and when put up in the shop, should be carefully fitted, in order to allow an easy sliding motion when the boiler expands and contracts. I have expressed the idea recently that the sticking or moving hard of these expansion plates might possibly put a strain on the main frames that would help to break them. Some men I have advanced this idea to have thought there was nothing in it, while others, after a little thought, were led to believe there was something in it. Personally, I am quite sure that it can be a possible cause of broken frames. I have seen expansion plates stick so tight and refuse to move that they have broken the expansion plates. You are all familiar with the large amount of trouble from the studs in the boiler that hold the expansion plates, due, I think, directly to the fact that these plates are not properly fitted, and largely because they are not lubricated. It has been explained to me recently that these expansion plates being tight and not allowing for the

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proper expansion of the boiler, would make an engine ride very hard.

MR. HIGGINS (Engineer of Tests on C., B. & Q.): The lubricator that we have today, to me, is a very poor piece of mechanism. First, you start the lubricator going. Before reaching the valve the oil must travel through a pipe some twenty feet long, and all this space must be filled before the valve is lubricated. The engineer, when he starts out on the trip, allows so many drops a minute, and it does not matter if he is going twenty-five or forty-five miles an hour, he feeds just the same quantity of oil.

It seems to me that a pump could be attached to the steam chest and arranged to pump a drop for a given number of strokes. This would give the oil directly to the valve and not be wasting when the engine was not moving.

I had the pleasure of being in one of the large shipbuilding yards on the Clyde River, in Scotland, this last summer, and noticed that no lubricators were put on the engines. Upon inquiry I found that no oil is used to lubricate valves or cylinders, except a swab on the piston rod. They use dry graphite only, and will run for six or seven days continuously and experience no trouble. This matter of valve oil has become a large item, and it seems to me that some investigation with graphite will surely pay.

If they can run a marine engine for a week without shutting down, without using oil, it seems as though we could, perhaps, use graphite in connection with oil and save this enormous cost of valve oil which now stares the engineer in the face every time he goes to draw a can of oil.

MR. ROESCH: Mr. Wells spoke of putting plugs in driving box cellars. We tried that on the Colorado and Southern, putting one plug in each corner of the cellar. While it is a pretty fair device for packing the cellar, it is not a cure-all by any means, and the trouble was to know if the cellar was properly packed. I believe if the cellars were properly packed with a perfectly spongy packing and then an oil pipe were put on, so that the engineer would pour oil into that pipe, and let it go into the cellar, that we would have much better success.

In regard to the graphite proposition, I wish to state that we have been using graphite in connection with valve oil for lubricating cylinders for some time by means of an automatic graphite lubricator, but its success depends largely upon the location of the lubricator. If we do not get the lubricator located at the proper point much of the dry graphite is carried out through the exhaust—carried right out through the stack—but it has given us very good results as compared to oil lubrication. We use it dry. The lubricator is attached to the steam chest, and it holds about three-quarters of a pound of graphite and makes about 400 to 1,500 miles. It saves about enough in oil to pay for the graphite. But it was not put on with the intention of saving oil; simply to save cylinders.

MR. C. H. KESSLER (Chief Draughtsman Colorado and Southern: The drawing of the driving box (Figure 1) shows a central oil groove and also side grooves. It is not common practice to use both at once in the same box. We get the maximum pressure per square inch directly on top of the journal, and it would seem advisable to close up this cavity, as it would add about 13 or 14 square inches bearing area. The side grooves are objectionable in that the oil must travel so great a distance in properly lubricating the rubbing surfaces, as it is evident from the drawing that the forward groove will be of very little benefit, when running forward, and conversely if running backward. In addition, there is the objectionable feature of the sharp edges scraping off the oil before it has a chance to do any good. The only way to lubricate driving journals, then, seems to be from below. There has recently been put in practice on one of the Eastern roads a device for lubricating driving journals with "dope." This scheme is illustrated in some of the technical papers, and consists essentially of a false cellar containing the "dope." A loose follower, actuated by a helical spring, forces the "dope" upward through the perforated tops of the false cellar, maintaining a thin film of grease on the journal.

There can be little doubt but that hot driving boxes are caused by things other than great pressures and friction. Some of these other things that may be mentioned are the hammering due to the action of the main rods, poor counter-balancing, rough track, etc. Then there is hub friction to be taken into account. The hammer blows of the rods may be aggravated by loose wedges, loose brasses, etc. While we may always be troubled by hot driving boxes, some scheme whereby a lubricant may be introduced which has more body than the comparatively thin oils commonly used will greatly lessen the number."

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MR. PAXTON (Superintendent Motive Power Colorado and Southern): High steam pressure, as used nowadays, is accountable largely for the difficulty we have in lubricating locomotive cylinders, and if we keep on increasing the pressures we will find added difficulty in finding a fluid that will do the work. We will be compelled to resort to graphite, or do like the government the gentleman speaks of, run without oil at all.

There is no other single thing that has a more serious bearing on the matter of proper lubrication than water supply. I remember not long ago having been on a road in the South where we had as good water as I ever saw, generally speaking, but there was a large per cent. of soda in that water, which was principally artesian. This set up a tendency to "priming" which we found very difficult to contend with. Such a large percentage of moisture followed the steam out through the throttle valve to the cylinders that it made it almost impossible to get satisfactory lubrication. I have seen more than one-third of the power of the engine consumed by internal friction set up in this way.

The common car oil box is distinguished for its simplicity and accessibility, and the difficulties that beset us in the driving box are of a character that are hard to overcome, and modern construction seems to be complicating these matters instead of improving them.

I noticed, as referred to by a writer recently, in a late number of the Engineering Magazine, an article in regard to the use of "dope" in driving box cellars. The idea was given out by a master mechanic on the Delaware-Lackawanna. He claims to have applied it to about fourteen engines, and with very satisfactory results. He states that on consolidation engines, during a period of six months, in which a test was made, that the cost of driving box lubrication per thousand locomotive miles run was only 10 cents, while the cost for lubricating with oil for the same work had been 84 cents. He mentions the fact that they have not had a single instance of a hot driving box while they have used this grease.

The pressure carried on the modern locomotive is much higher on the average than that obtaining a few years ago. Four years ago I was handling a class of 18x24 inch, ten-wheel engines, carrying 180 pounds of steam, and operating in freight service. During the last six months in 1898 our cost per thousand locomotive miles for lubricating those engines was an average of $1.34. Our figures today are 94 per cent. higher than that, and I believe that the increased cost is due more than anything else to that difference of 30 pounds of steam, between 180 and 210, supplemented, perhaps, by an inferior water supply.

MR. C. B. TOPPAN (Pennsylvania Oil and Gas Company): The question of lubrication in any form is greatly governed by this degree of quality. We generally speak of an oil as burning, as a fuel; in truth, mineral oils do not burn, in the form of oil; it is not until the requisite amount of heat has been absorbed by the oil, which is required to expand it into a gaseous body, that ignition takes place.

If any of you are familiar with the process of refining oil, you know that it is a matter of distillation, bringing the product which you are handling down to a point of a gas, and afterwards changing it to the form of oil which you wish to use. That a better knowledge of the subject may be obtained, nothing would impart the same more effectually than a visit to an oil refinery, and there watch the course of the fluid in its passing from the crude to the refined state. As I have stated, the process of oil refining is distillation, and under certain conditions desired, concentration. Distillation is the rendering of the fluid product into a gaseous body within the still, "the value and extent of same passed over being governed by the temperature maintained in the body of oil in still," the passing over and through the warm to cooling coil, thence to reception tank where oil in a fluid state appears, the equivalent of the gases produced at a given temperature. After the passing of the more volatile portions, superheated steam is properly introduced into the still. This, with its high temperature, mingles with and passes over some of the remaining lighter portions of the lubricating oils, concentration taking place; subsequent chemical treatment for the purpose of purifying more perfectly this product, produces what is known as cylinder stock, of very high flash or gasing point test. The point of flash ignition, to reach the fire test or point of continual burning, enough more heat must be absorbed, so that a continuous flow of gas will obtain—enough to produce continued burning. Bear in mind, mineral oils never burn except they have reached this form. Heat is the primary cause of this condition, and here is where it applies to our modern engines under high steam pressure—210° F.

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—the contained heat of which, where it reaches the chest and cylinders, is very great—something over 400° F. This requires a high-grade oil, in order that under this temperature the margin of difference before the flash point is reached will allow of a fluid state sufficient to be of service as a lubricant.

We now come to the action of this oil in service, commencing with the lubricator. And right here I have to disagree, not only with the gentleman who spoke on this subject a few moments ago, but with other statements, printed and oral, which have been made heretofore.

They speak of the oil as requiring so many minutes to pass from lubricator to steam-chest, after lubricator has been started, appearing there in same form as when it passed up through sight glass. Now, all seem to have lost sight of the fact that steam under boiler pressure and temperature enters greatly into this work. Upon opening the steam throttle to lubricator, steam enters and passes through regular passages within lubricator to the oil pipes at point where the same join lubricator; here it meets with and takes up the oil which has come up by way of the feed tubes via choke plugs, and slightly expanding and greatly condensing, rushes on to the steam chest, not in minutes of duration of time, but in the small fraction of a second, and delivers the oil taken up in its passage to the steam-chest in the form of an emulsified solution and steam. It is here met by the steam on its way from the boiler to the cylinders, which steam becomes saturated with oil, and passes on to its work. How much or how little this work is assisted by the oil depends entirely upon the amount received.

If, in the general practice of 15 or 18 years ago we have determined that a certain amount of oil per minute, measured by the drop, as it appears at the lubricator, was necessary at that time, and for the power of that date, and we attempt to apply the same rule to our modern large engines, with double the extent of friction surface, it is but plain that we must fail in our efforts to obtain perfect results, economically maintained.

Throughout this progress of the oil from the lubricator to the exhaust, you will notice close analogy to the process observed in the refinery, in the production of oil stock.

Passing, now, to the driving box and journal, admitting, as we must, the pinching of the brass at or near center line of journal, I will cite a point of small extent: At some point along the side of the brass, where the edge of same has worn to a close fit with the journal, the oil, as it comes upon the face of the journal from contact with the waste in cellar, meets with this sharp edge, where all the oil is scraped off; the result is a line extending around inside of brass which is void of oil; here friction is great, heat is generated, the adjoining portions of the brass and journal absorb this heat, until it begins to be perceptible to sight and sense of feeling. This heat is communicated to the film of oil on other parts of bearing, raising its temperature until it approaches the point near which it was set over or concentrated in the refinery, and when it reaches this point, lubrication ceases and internal friction begins. Thus you see that both in cylinders and journal lubrication, approximately the same conditions take place, under heat, as were used in the refinery in the production of the oil.

There is another little point in connection with oils which tends to produce internal friction.

All oils are composed of minute globules; in some, these globules are round in form, others are oblong. Under microscopic investigation, it is found that when two oils of such form of globules are mixed, perfect action of the oils can not take place, and the result is friction of the globules within themselves. Small though this may be, it is sufficient to cause a deteriorating effect.

It is impossible at this time to enumerate all the various features which combine to make a perfect lubrication of surfaces. But, considering the rapidly increasing dimensions and corresponding difficulties met with daily in modern locomotive practice and car service as well, I would suggest that the management of railways, master mechanics and superintendents should examine more closely into the nature and conditions of the oils they are using, visit the refineries, and become closer acquainted with the methods of refining. You will find it an instructive and entertaining expenditure of time and a source of useful knowledge.—Rocky Mountain Railway Club, November 22, 1902.

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The Essentials of a Good Draft Gear.

E. M. HEBB (Manager Westinghouse Air Brake Company): The term "draft gear" is frequently used to mean either

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the whole or some important part of that portion of a car through which the stresses, occasioned by either pulling or pushing the car by its draw-bar, must pass to the car framing. It seems, therefore, important to first define the term "draft gear."

My definition would be the broad one covered by the statement already made, viz.: The draft gear is that part of the car transmitting to the framework of the car body the pulling and pushing stresses imposed upon the draw-bar. This draft gear is composed of three essential parts.

1. The draw-bar with its yoke and followers or other means of transmitting pulling and pushing stresses to the second or yielding portion of the draft gear.

2. The yielding portion, usually a spring or substitute therefor, interposed between the draw-bar and attachments and the third or fixed portion of the draft gear.

3. The fixed portion or draft gear attachments to the framing of the car.

Having now the draft gear composed of the draw-bar, the yielding portion, and the attachments to the car, what should be said to be the essentials of a good draft gear?

This more than any other part of the car structure is subjected to severe shocks and stresses both of tension and compression. It is, therefore, manifest that great strength is of prime importance. A designer with the object of the greatest possible strength in the draft gear would make the draw-bar of the strongest possible material, see that its attachments were also of the proper cross section to withstand fully as great stresses as the bar, and that they were secured to the car framing firmly with bolts, keys and other accessories, arranged to distribute the stresses transmitted to the car sills as advantageously as possible. Such a design would leave out entirely the second or yielding portion of the draft gear because it is much easier to attach a draw-bar to the car framing directly than by interposing a spring or other yielding member between the draw-bar and the car. Not only this, but were pulling and pushing stresses only to be considered, the interposition of this spring would surely make a weaker and less secure attachment. Is this yielding portion then a nonessential to a good draft gear which can be omitted, or have we failed to consider some condition affecting its design?

Slight consideration will disclose the omission. The pulling and pushing strains imposed on the draw-bar are not gradually applied, but generally come as shocks or blows. It is well known that the destructive effect of a blow is greatly increased when it is delivered against a rigid body and correspondingly decreased when the thing struck is yielding. It is, therefore, clear that another essential of a good draft gear is interposed yielding resistance.

It was formerly supposed that if this yielding portion of the draft gear was equal to or slightly in excess of the tractive effort of the locomotive hauling the cars, ample provision had been made. Were the strains imposed upon draft gear never greater than the tractive power of the locomotive drawing the train, a yielding portion of the draft gear equal or slightly in excess thereof would be sufficient. Unfortunately for the simplicity of our design, this is not the case. Owing to the enormous weight of modern cars and locomotives, these bodies when once set in motion have in themselves, by reason of such motion, an amount of energy or capacity to exert strains and stresses in their draft gear compared with which the tractive power of the most powerful locomotive is small. Witness the ease with which trains are often broken in two, three or more parts in passing through sags or over "hog backs."

The forces which cause this damage are not gradually applied on the draft gear. They usually come as blows caused by bodies of great weight moving with moderate velocities. In fact, the weights of modern cars and locomotives are so great that unless the speed with which they come together is moderate, no draft appliance even with the greatest possible amount of yielding resistance interposed, can withstand the shock. In fact, as instanced above, their strength is sometimes exceeded usually because of yielding resistance of inadequate capacity.

It is of great importance to keep carefully in mind the difference in effect produced by the impact of bodies moving with different velocities. We are as likely to reach erroneous conclusions in designing draft gears if we reason from the effect of impact from bodies of too high as of too low velocity. Not only, therefore, is the yielding portion an essential part, but it is so essential that no draft gear without it could long endure. It is also evident that the amount of yielding

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resistance formerly adequate becomes entirely inadequate with the heavier cars and locomotives and the stronger and more rigid car bodies now used.

Can this greater yielding resistance be obtained satisfactorily by simply increasing the number or strength of the springs formerly used with good results? Within certain limits only can this be done, for it must be remembered that when a spring is compressed it contains an amount of stored energy capable of doing work or increasing stresses in the parts confining it just as surely as the moving body of the car or locomotive itself. The strains these springs are able to and do exert are practically equal to the force which compressed them. Inasmuch as cars must be run in trains, where the draft springs act one upon another, the cumulative effect of the recoil of a number of such powerful springs cumulating at some point in the train, would result in stresses so high that the other parts of the draft gear could not withstand them even if such stresses were not increased, as they often are, by the power of the locomotive drawing the train. This action often results in the breakage of couplings when long trains, especially of empty cars, are stopped at high speed by an emergency application of the air brake.

It is, therefore, essential not only that the yielding portion of the draft gear be of large capacity, but that it should have little reaction or recoil.

Now, having the strongest possible draw-bar properly arranged with an adequate amount of yielding resistance with minimum recoil, the third or fixed portion of the draft gear should be made of the strongest available materials and secured to the sills of the car in such a way as to bring the heavy strains of pulling and the still heavier buffing stresses upon the parts of the car best adapted to receive them.

No specific rules can be laid down, as the design of cars is so different that the disposition of these attachments so the various stresses come on those parts of the car which can best resist them, is the great essential. It is also essential that the draft gear attachments, or the so-called fixed portion should be so designed as to admit of proper inspection and facility in making repairs or renewals.

The essentials of a good draft gear, therefore, are:

1. A draw-bar of the strongest material to resist blows, jerks, etc., with secure attachments to transmit stresses received.

2. Adequate yielding resistance with minimum recoil, securely housed.

3. Fixed attachments to the car, strong and well designed for ease of inspection of the gear, and well secured to the car so as to distribute and dispose of all stresses as advantageously as possible.

ROY V. WRIGHT (M. E., P. & L. E. R. R.): The fact seems to be generally recognized among railway mechanical men that the ordinary spring draft gear is too light for the heavy service now required of it. The high capacity cars and the large locomotives now generally used, and in the case of the steel cars, the stiff construction have shown it to be defective in many respects. A careful study of the conditions and requirements to be filled lead us to believe that the following are some of the essentials of a good draft gear:

1. A capacity of at least 100,000 pounds. That is, it must have a yielding resistance amounting to this much, and it must be able to stand a blow of several times this amount without injuring it.

2. A total draw-bar movement of at least 2 inches.

3. A good draw-bar movement under ordinary pulls.

4. A small amount of recoil compared to its capacity.

5. It must be substantial. Repairs, except for unfair usage, should not be necessary. Parts should be of a simple and substantial design, and as few in number as possible.

I. The Standard M. C. B. draft spring has a capacity of 19,000 pounds. The twin spring and tandem spring arrangements would therefore have a capacity of 38,000 pounds. The tractive power of the large freight locomotives now generally used is greater than this.

The following is a quotation taken from the report before the Western Railway Club on tests made with the Westinghouse Dynamometer car by the Lake Shore and Michigan Southern Railway Company:

"From the general results of the tests it is believed that the tensile strains in draft gears with careful handling will frequently reach 50,000 pounds, with ordinary handling 80,000 pounds, and with decidedly rough handling, fully 100,000 pounds, while the buffing strains can be placed at 100,000, 150,000 and from 200,000 to 300,000 pounds, respectively. In extreme cases, the buffing strains will go

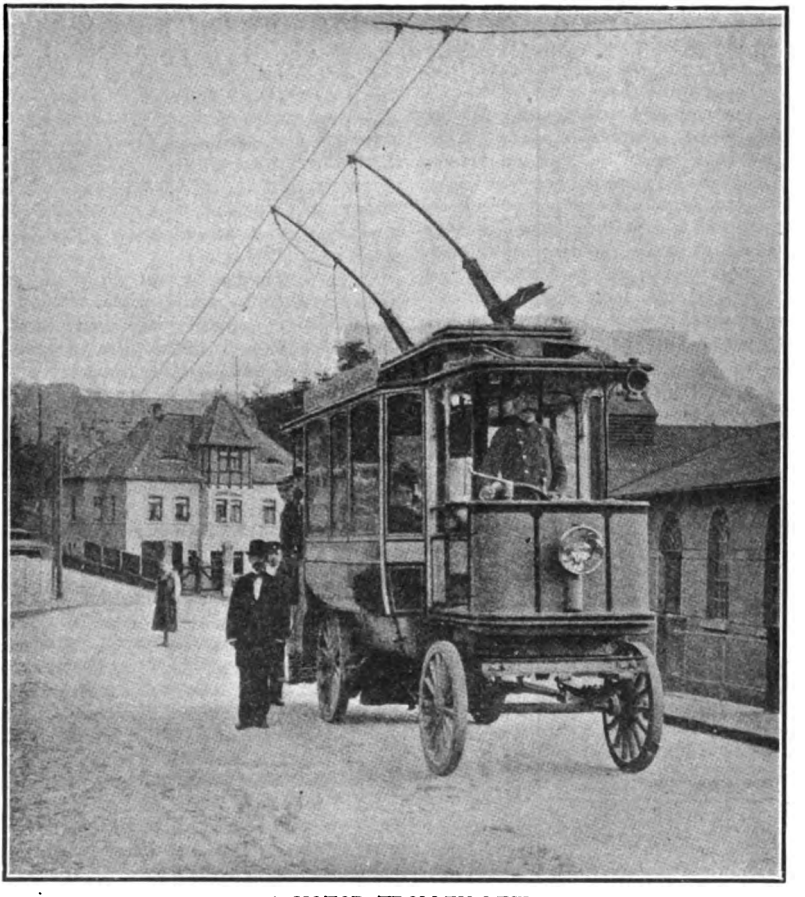
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considerably above the last named figure."

With these facts in view, it would seem necessary to have a better cushion than is accorded by the present standard rigging, and this opinion is strengthened when we examine the repair bills and note the damages which would probably not have occurred if a better draft rigging had been used.

that heavy trains may be easily started. If the draft rigging is too stiff, it is quite evident that it will be harder to start the train, and where the locomotives are loaded to their limit, as is now the common practice on many roads, it would, in many cases, necessitate handling a lighter train.

IV. The recoil of a spring is very great compared to its capacity, therefore, if we had a spring rigging with a capacity of



A MOTOR TROLLEY LINE

Omnibus operated on Fontainebleau and Samois Line. See article from Scientific American, page 183.

II. The present standard draft rigging allows a total draw-bar movement of 1¾ inches. This should be greater, in order that the mechanical energy may be more easily absorbed, and it would not seem wise to have it any less than two inches.

III. There must be a good draw-bar movement under ordinary pulls, in order

100,000 pounds, the recoil would be so great as to be destructive. While it is therefore advisable to have a small recoil compared to the capacity, it would be well, when the rigging is under a load of say one-third or one-fourth its capacity, that the recoil be large compared to the force upon it, for this reason: When an

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engine starts out with a heavy train, it will often be noticed that after the engine has gone forward a few feet, it will come to a dead stop, and for a few seconds appear to be stalled. When the recoil of the spring takes effect, it assists the engine and it will move forward.

V. There seems to be a general opinion abroad that friction draft gears which, of course, come nearer filling the above conditions than spring gears, are not substantial enough, and will go to pieces or will give out after they have been in service awhile. Following the general principles of mechanical design, it would seem that a rigging designed with few parts, of a simple design and a durable material, and having large friction surfaces, ought to give satisfaction, provided such a rigging could be produced.—Railway Club of Pittsburgh, December 26, 1902.

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Damage to Cars.

MR. MCPARTLAND: There is no question but that the number of bad order cars on railways, at this time particularly, is increasing. The reason for that, however, is manifold; there are quite a number of causes. One of these causes is the improper handling or air brakes. The trains are prepared to start on their trips without properly testing the air brakes, and by personal observation I have found that in a great many cases they do not test the train line for leaks; they simply test the brakes, as to whether or not they will apply and will release; therefore the engineer starts out on the road not knowing whether there are any leaks in his train line or not. When he reaches the first point at which he is to make a stop for water or coal, or switching, or any other purpose, he makes possibly a ten pound or a twelve pound train line reduction through the engineer's valve, while the leaks in the train pipe make an additional ten pounds reduction, and he gets an emergency application of the brake which causes a very severe shock to the rear of the train.

The increase of bad order cars at this time is also attributable in a measure to the fact of our coming to the M. C. B. draw-bar, that is, recently. We were given until a certain time to equip all our cars with an automatic draw-bar. When this was done, the draft stringers were re-enforced, and the yoke draw-bar substituted for the old tail-bolts, but the underframing of the car, particularly the intermediate stringers, were not strengthened, and in our lighter and older cars we find that they are suffering very badly, and in a great many cases, if you will notice particularly when passing through the shops and repair yards, you will find quite a number of the intermediate stringers are broken at the transom. In fact, the Western roads in the past nine months have had their shop yards full of the lighter capacity cars. I would consider it safe to say that of all the bad order cars that are stored and in shop yards, the lighter capacity cars would possibly aggregate 70 per cent. of the total. Several of the Western roads have been compelled in the past nine months to switch those cars out and do the truck work and draw-bar or underframing work, and return them to service again.

Another cause of bad order cars is the rough handling of cars in our terminals and yards. With the M. C. B. bars the switchmen do not have to go between the cars, and it is held by a great many that that is one of the causes why the cars are handled so roughly. But in every case where I have taken that matter up, I have been told that unless the cars come together pretty hard the couplings will not make; and that appears to permeate the entire service—not only the yardmen, but the enginemen as well—so that when the signal is given to slow or to stop, the engine is shut off and the cars are allowed to drift together. With the heavy type of engines that we are now using in train and yard service, the shock is simply terrific, and particularly if they have hold of a great many cars, as was demonstrated in the test made by the committee of this club recently.

Yardmen also claim that they are expected to work fast, and therefore can not handle cars as carefully as we expect them to. Now, judging from my past experience and personal observation, while the business of the Western roads is increasing, and on a great many of the roads in excess of the facilities and the capacity for handling cars in the yards, I am well satisfied that with the present M. C. B. coupler we can switch faster and handle more cars in a given time than we could with the old link and pin draw-bar, that is, taking into consideration the higher capacity car, the heavier car of today, for the reason that when they go onto a track, as a rule, the cars are coupled up. They do not have to run over the yard and carry links and pins to make the coupling, which consumed a large percentage of the time before the adoption of the M. C. B. coupler.

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When you come to consider that we have not been using the present type of M. C. B. coupler very long, and that only a short time ago our cars were all newly equipped, it is not to be wondered at that at this time the bad order cars would be increasing, because the draft gears and the couplers of the first cars that we equipped are pretty well worn.

It is also true that we are experiencing delays to traffic and considerable expense caused by the heavy freight trains setting out bad order cars at the way stations and sending men out to repair them. I would say in nearly 50 per cent. of these cases we get the man out there and he does not have suitable material with which to make the repairs and it is a very difficult matter to get anything like correct information from a station agent as to what material will be necessary to repair a car set out at a way station. We often find that after sending a man there with such material as we think will be necessary to make the repairs, that we have to give a local freight train an order to chain the car up and haul it into the first division station next to its way car.

This is a matter that I think is well timed, and that the Western Railway Club as an organization ought to take up for general treatment, with its recommendations.

We have found that in our heavy freight trains, ranging, with the different classes of engines, with a train tonnage of from 1,000 to 1,500 tons, over a 3.5 per cent. grade, that it is absolutely unsafe to place a car equipped with a tail-bolt coupler in the forward part of our trains, and for that reason there are extant at this time positive instructions to car inspectors to mark all such cars "Tail-bolt; switch to rear," and positive instructions to all yardmen and trainmen to switch such cars to the rear and not to haul them in any other part of the train.

MR. PECK: Eight or nine years ago, when there were nothing but cast draw-bars in service, I kept a record of all the draw-bars broken. In one year we broke 2,100 and we did not handle one-half the number of cars we do at the present time. Last year we broke 210 and many of them were found to have been defective—cracked. We have larger engines and run many trains with double headers in cold weather. We have more trouble with draft timber bolts, lug bolts, and lugs breaking than we do with draw-bars. Another thing, since the M. C. B. coupler has been placed on all cars it is saving a great many delays. When we had nothing but links and pins we were frequently delayed from two to four hours and even six hours at terminal points getting enough links and pins to couple and switch cars. We do not experience this now. When the M. C. B. coupler was designed if the railroads had been running the same weight of engines and capacity of cars as now no doubt the coupler would have been made stronger. But as it is now the contour lines can not be changed without changing the whole equipment. Some years ago twenty-five cars was a train to some roads running in Chicago. Now the same roads bring in seventy-five cars with one locomotive and the cars of double the capacity they were. I think this is one reason why we experience the breakages in couplers that we now have. I do not think such trains could be handled with cast iron draw-bars without continually breaking in two. With the old-fashioned draft rigging I do not think there are bolts enough, nor heavy enough, as the bolts were only increased from ¾ to 1⅛ on the heaviest cars.

MR. HETZLER: It seems to me that the trouble we have had on account of bad order cars was brought about somewhat in this way: First we received our very large capacity cars. At that time we were working with a smaller switch engine. The next step was to get switch engines large enough to handle the large capacity cars. Our enginemen were obliged to work with engines they were not familiar with; the switchmen were obliged to work with cars that ran differently from smaller cars, and necessarily had a great many accidents. Our experience in Chicago on the C., B. & Q. R. R. is that we are having fewer accidents than we had a while ago. Nearly all our switch engines are large engines and the enginemen know how to handle them and the switchmen know how to handle the cars.

Last week I took two or three of my yardmasters over to the Panhandle Railroad to see what we could learn over there. We found them switching over a hump. A hump is one style of a gravity track, with a grade on one side of 2 feet in 100, and on the other side 4 feet in 100. In this yard they push a train of cars up the hump, and when it reaches the top of the hump each car is allowed to run down into its proper track in the yard. We have not as yet had much experience in the matter, but we have worked with

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that about a week, and our experience is that we can handle cars a great deal easier, with less damage and much more rapidly, especially very large cars. Before we introduced the hump in our down-town yard, an engine would take thirty-five or forty cars, shove them back and forth, trying the draft gear on each car every time the car was switched, and doing a great deal of damage to some of them, which would show up later when the car was on the line. Using the hump track, as we call it, the cars are pushed on top of the hump and uncoupled and run down without any shoving afterwards. I think if this is followed out it will be the means of saving a great amount of money.

MR. SCHROYER: The elimination of the danger in the switching of cars, I believe, has led up to a point of carelessness on the part of our men who are handling them that is responsible for very much of the damage done to the car and to the contents. Today we have sills broken, draft timbers broken, but more frequently it is the end that is knocked out of the car. I can not tell what percentage of ends there is knocked out of our cars, because I do not know precisely, but I know pretty nearly. I go through our yards today, and I can pick out the cars here and there that have the ends knocked out through the handling of the cars in our yards. I do not know whether we ought to blame the switchmen for this condition or not. There are some of the couplers in use today that are mechanically constructed in such a way that they are quite difficult to couple, and you have to hit them a very hard blow to make them do it. The rust and wear of the coupler has multiplied those conditions, and make it still harder when the bar becomes rusty.

Several years ago I put a man or two to work in our largest yards, to go over all the couplers and oil the base and guard-arm where the knuckle would strike it, and oil the knuckle to make the couplers couple easier, and it did. We were sending them out on the road, and the switchmen said that they noticed the greatest difference in the ease with which they coupled when treated that way.

Later we had difficulty with the cars uncoupling, and a great many of the trainmen claimed that it was due to the fact that there was oil on the knuckle and that it would cause them to uncouple. As a result we discontinued that practice. A greater cause for the destruction of our cars was illustrated to me very forcibly here a few days ago. I was standing in a yard, and as a train came in a door flew off—a side door was knocked off one of the grain cars, and came very near hitting a switchman who was giving the signals; he left the door there—paid no attention to it at all. A gentleman connected with the road said, "Now put that door back in the car where it belongs, and you can save this company $5." He said, "It is not my business to pick up doors," and left it there. He reported it to the foreman of the crew; he was not there at the time, and did not know where the car was that the door belonged to; it had been lost track of. There was a spirit of indifference displayed there to the fact that if that door was lost the company would have to pay $5 for it, and I believe that the greatest difficulty is in that spirit on the part of the men who are handling the cars; I believe that is the greatest cause of the destruction of our cars.

In so far as the use of the air brake is concerned, I believe that there is very much damage done to our cars by improper handling of the air brake, and in so far as improving the conditions in the handling of the air brake, in so far as keeping the apparatus in perfect order is concerned, I think the important roads of the country today realize that it is necessary to do this, and they are all spending as much money as they possibly dare spend to keep their cars in perfect order so far as the apparatus is concerned, so that I do not believe we can make very much progress in improvements of that character unless we go to very considerably more expense.

In so far as leaky train pipes are concerned, I believe the difficulty is in not having pumps on our engines of proper capacity to keep the train pipes properly charged, and compensate for the leaks that may exist there. I know roads that are using two pumps on one engine and keeping them busy going all the time; I know of others using the very largest pumps that they can get and not getting very satisfactory results, and I know, on the other hand, of roads using the small nine-inch pump.

MR. H. T. BENTLEY (C. & N. W. R. R.): I take exception to what Mr. Schroyer said about pumps not being large enough. If a nine-and-a-half-inch pump is in first class condition, and the hose and pipes under the cars are in good shape, it can furnish all the air necessary for a forty or fifty-car train. The trouble with us is that we begin at the wrong

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end. We put larger pumps on to overcome the defects on the cars. I think if Mr. Schroyer and the roads he refers to will make an effort to stop the leaks on the cars, the air pumps will be adequate for all requirements.

MR. E. R. WEBB (Michigan Central R. R.): I confirm what the gentleman who has last spoken says. There is not any question but that many of the shocks the trains are subjected to are occasioned by leaky train lines, and there is not any real use in blaming the train crews; they are not looking the train pipes over and fixing these cars. There certainly can be a crew picked up in this room, men who have come up from the service, for a train going out from Chicago, and I would like to know if that crew will inspect sixty or seventy cars for a leaky train pipe and make repairs when there is a pump large enough to overcome the leaks. I do not believe that any crew you can get would do such a thing; they do not have the time to do it. An eleven-and-a-half-inch pump is certainly a monstrous machine for pumping air; it will do an immense amount of pumping. I do think the pump is, if anything, too large.

MR. D. R. MACBAIN (Michigan Central R. R.): I would like to add, Mr. President, that I believe the matter of handling air brakes on the part of the engineer is responsible for a small part of the breakage of cars. I believe that to be true for this reason: Engineers are not responsible for the condition of the train line. We do know, I know personally, that we get hold of trains once in a while with a number of cars running from forty-five to seventy, that an eleven-inch pump can not keep up the required pressure in the train line. Now, if the eleven-inch pump will not keep up that pressure, what size will you put on to do it? On the other hand, you can take the same engine, connect it to 100 cars that are new and in good condition, and the pump will not run more than 10 per cent. of the time after the train line is charged.

The greatest curse to handling air brake trains in the country that I know of, is the leaky train line, and I will try to illustrate why this is so. An engineer who has handled an engine for any length of time and takes an interest in his business will try and make good stops; it is his aim to do so. He will run along to the first stop out of the terminal from which he starts, shut off the steam at a certain point, a distance which he thinks will give sufficient room to make a nice easy stop with his train; he makes an application of the brake, and a few seconds afterward realizes that he is going to stop six or eight hundred feet away from the point intended, because his train line pressure has been diminished and his brakes applied full on, which necessitates a release, or a stop dead, either necessitating a loss of time in going in out of the way. Now the breaking of cars through draft irons pulling out and knuckles being broken by the crew in handling those trains comes more through that cause than anything else. Men will take a chance when the train is reduced in speed, to let the brake off, rather than stop dead, and when they do go off the brakes on the head release a few seconds ahead of those on the rear, and this usually finds a weak spot in the train.

I do not believe it is fair to think that we can build an air pump to put on a locomotive to pump against an open train pipe at the read end, although I believe we are doing pretty near that now.

MR. MCPARTLAND: If an engine has been coupled to the train, and the train is charged to its maximum capacity, or the train line maximum, which is 70 pounds, it is a very easy matter for the engineer to place his valve on the lap and note the train line leaks as shown by his gauge. If his train line is perfectly tight, he knows what he is doing and how much of a reduction to make in service stops. If he finds that there are train line leaks that are sufficient to apply the brakes, he does not want to waste air; he simply, in approaching the service stop, places the valve on the lap and lets the leaks do the rest: they will do it all right, there is no question about it.

MR. J. A. GRAHAM: I was standing in a yard a short time ago and saw the switchmen cutting off cars, but they paid no attention to cutting the air hose; the consequence is that the joints are strained and you have leaky pipes. You can put on all the pumps you want, and give it all the attention you have a mind to at terminals, but you will never overcome the trouble until you get the switchmen who handle the cars to uncouple the air hose. I think this is the most important thing in connection with the leaks in train pipes. If the cars are uncoupled properly I do not believe you are going to have very much trouble with leaky train pipes.

MR. MCPARTLAND: I would like to simply offer a suggestion, and that is, the possibility of including in this application

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test before a train leaves a terminal, a test of whether or not there are any dirty triples in the train, and if so, how many.

Now, in every case where I have had my attention called to the matter of having trouble with the brakes, an engineer pulls his train into the yards and says, "We have had some of the worst stops that were ever made," or, "We had a lot of valves going into emergency every stop we made." I simply let him get his water and recouple the train. First charge the train to the maximum train line pressure of 70 pounds, and then place the engineer's valve on the lap for the purpose of testing the train line for leaks. If I find there are no leaks in the train line, I then have him place the valve back in running position and charge the train line up to 70 pounds again, and make a train line reduction of 10 pounds and place the valve on the lap, then go back over the train and find the cars that will not apply on a 10-pound reduction, and in every case cut the car out and card it, as Mr. Schroyer has stated, for a dirty triple or leaky cylinder packing. In all my experience I have never had any of the mechanical department come back and say that that triple was not dirty; it is positive evidence that if that triple will not apply on service application of 10 pounds, or a train line reduction of 10 pounds, that the triple is dirty or cylinder packing leaking, and should be cut out and not used until the triple has been changed or cylinder cleaned.

MR. RHODES: When we first put a big switch engine in one of our yards it was at once noticeable that the cars were being damaged in a way that they were not before. The engine was slipping and pounding around the yard in a very unusual way, notwithstanding the fact that it had more weight on its drivers than the engines that had been used before. The first thing our superintendent of motive power did was to put the traveling engineer on the engine to instruct the engineer how to handle this bigger power, and the results at once began to show.—Western Railway Club, October 21, 1902.

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The Ideal Driving Box.

MR. R. P. BLAKE (Mechanical Engineer, Northern Pacific Ry.): The class of locomotives which is subject to chronic fits of hot driving boxes is, as a rule, one of the most despised on the road.

If the engine does not steam, the nozzle can be bushed or by similar means the engine can be made to do business with the class of fuel furnished and for the service required.

If, however, the driving boxes are "touchy," the engine is the bugbear of engineers and master mechanics, train dispatchers and superintendents, and oftentimes brings down the wrath of the "powers that be" upon the poor unfortunates who are expected to make up for inherent defects in design by superhuman efforts in handling.

Ten years ago, when engines were small, the troubles from hot driving boxes were nearly all due to negligence. But with the universal adoption of heavy power and an attempt to cut everything down to the lowest possible margin of weight and first cost, the troubles began.

With the weight on drivers doubled and power of the engine increased in a greater proportion, the careful design requires a consideration of a number of details which were at one time of minor importance.

In considering the design of a driving box for a modern heavy engine, the first question is the material to be used. Bronze boxes, such as were used in years gone by, are now out of the question on account of their cost. Cast iron boxes, in order to have the proper strength, must be too heavy, and while giving good bearing surfaces for shoes, wedges and hubs, are hardly tough enough for heavy service. Their excessive weight makes them awkward to handle in fitting and machining and adds unnecessarily to the totai weight of the engine.

Cast steel boxes, when properly designed, should be considerably lighter and stronger and the bearing faces for shoes, wedges and hubs can be made against bronze or babbitt, and will give service equal to cast iron. The higher first cost as compared with cast iron is offset by longer life, which means less depreciation charge on the investment.

Before the open hearth process of steel manufacture became common, iron for driving axles was used very extensively with excellent results. But it is a difficult matter to make a large iron forging and have it free from seams. If by any chance a journal on an iron axle becomes hot, the small seams open and make matters worse.

Steel, when properly made and finished, is stronger and tougher than iron. It will take a better surface in machining if properly treated, and will be more reliable in service. The steel should not be too dense, because the thin filament of oil

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which is necessary for good lubrication is maintained only by the presence of small pockets or indentations in the surface. If the journal is so hard that it takes a high polish, the bearing becomes so perfect that oil will not stay on it and heating will surely follow.

The proper material for brass bearings is also an important one, and, briefly stated, should be a tough, close-grained brass or bronze of the right mixture to obtain these results.

The friction on a journal bearing is a function not only of the condition of the bearing but also the velocity of rubbing surfaces. For this reason good practice limits the diameter of the journal to that necessary for proper strength.

In determining the diameter under these conditions we must consider the weight to be carried, the bending moment due to the pressure exerted by the main rod upon the main pin and the greatest twisting movement which can possibly be endured.

The unevenness of the track and rolling of the engine make it perfectly proper to assume that each journal may be subjected to a 50 per cent. increase over the load which it carries when the engine is at rest.

The Master Car Builders' Association in 1896 recommended a maximum allowable fiber stress for steel car axles of 22,000 pounds and in a new axle 20,000 pounds is a proper figure to use. The usual allowable limit of wear is about 10 per cent., and this will give for a maximum fiber stress at last turning about 22,000 pounds.

Having determined the proper diameter of journal, the length should be figured upon the basis of square inches of projected bearing.

The allowable static pressure per square inch of projected bearing on modern engines when new varies from 150 to 225 pounds, the latter being a very high figure for a new journal.

Under favorable conditions, a pressure of over 200 pounds per square inch can be used with safety, but it would seem from a consideration of modern practice as illustrated by engines built within the last year, that this figure should not be exceeded unless absolutely necessary. Modern engines often attain speeds of 350 revolutions per minute, and for a nine-and-one-half-inch journal this means a velocity of rubbing surface of upwards of 975 feet per minute.

This shows the desirability of keeping the diameter of the journal as small as is consistent with proper strength and keeping the bearing pressure down within safe limits.

When cast steel driving boxes were first introduced it was a common practice to press the shell in at 30 to 40 tons pressure, the idea being that the extra strength of the box would insure no danger of brass becoming loose. Experience, however, has shown that a moderate pressure is ample to hold the shell in place. If a heavy pressure is used and the brass by chance becomes heated it loses its elasticity and the box closes in on the cellar. Cases have been known where the cellar was removed on the road to repack and could not be replaced on account of the box closing in.

In this connection your attention is invited to the practice of continuing the outer circle of the shell below the center line. This gives a better fit and is believed to make the brass less liable to work loose. The side of the bearing should be removed for about one-half inch above the center of the journal to permit oil to collect and enter the bearing and to allow a reasonable amount of play.

Several years ago it was suggested that the idea of having a single oil groove on the top of the journal was not in accordance with the best practice, and that better results would be obtained by using grooves three-eighths of an inch to one-half of an inch wide, about 35 degrees down from the crown of the box. Nearly everyone tried this idea, some more thoroughly than others, and today nearly everyone has gone back to the single top oil groove. While theory says that oil introduced on the top of the bearing where the pressure is a maximum can not result in perfect lubrication, practice has proven that the side oil groove is a large waste of oil through the rear groove and a rapid increase in the lateral wear of the box, resulting in bad pounds and ample room for waste or other foreign matter to get on the bearing.

The waste of oil means skimping by engineers to keep up their oil records, with the usual disastrous experiences. The bad pounds mean broken frames and strained rods.

There is no one idea in modern locomotive practice today which has caused more grief than this widely exploited side oil groove.

The added metal on the crown of the bearing reduced wear at that point, and, with the more rapid increase fore and aft, the rear groove was found to be a good collector of small pieces of waste

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and dirt, which, sooner or later, worked out and onto the journal. With the older and smaller engines it was customary to use a three-fourths-inch oil groove on a seven-inch journal. In service it was found that the axle wore up into the crown about as fast as it wore away the side of the brass and consequently the boxes could be run between general shopping of engine without developing bad pounds.

It would seem that this was a question worthy of careful trial to learn the exact width of oil groove necessary to give the proper results, as it is evident that engines can be kept in much better condition if the proper ratio is determined and used. In this way a great deal of trouble from loose pedestal connections and rod bearings can be saved and a decided improvement effected. Your attention is invited to a design which has a diamond-shaped oil groove wider in the middle and tapering down towards the side of the bearing.

Before steel came into general use for driving axles, babbitt strips on the side of the box were considered a necessary adjunct, but with the introduction of steel axles in many cases these strips were omitted.

It is claimed that when babbitt strips are used and the box gets hot, the babbitt melts and the box must be removed and refitted before the engine returns to service. But it should also be remembered that when a box gets hot enough to melt babbitt, there is something radically wrong, and even if it is cooled off by the use of oil it requires close watching and is very apt to make further trouble without any warning or apparent cause.

With babbitt strips a great many pieces of dirt which can not be kept out of a box will imbed themselves and not cause further trouble.

With a hard bearing, however, such an allowance is almost certain to result in trouble.

The use of babbitt is still an unsettled question in many minds, but it is giving very good results in car service, where the pressure per square inch is heavier, and it seems only proper that it should give equally good results in driving journals.

You are no doubt familiar with the practice of the rough-and-ready roundhouse man having a bad driving box to fix up and no time to drop the box and to fit the bearing. He slips in between the brass and axle a piece of sheet lead or babbitt and sends the engine out, leaving the more laborious but thorough job for the time when the engine can be spared.

Shoes and wedges are today almost universally made of cast iron, but cast iron will not wear well against cast steel, and as a result it is common practice to jacket the shoe and wedge face of the box with babbitt.

The results, however, are not all that could be desired, as the shoes and wedges wear rapidly, and sometimes seize. Some roads are making a practice of facing the box with a brass liner cast in, but the brass liner on the shoe and wedge seem the cheaper and more to be desired.

In actual service they wear very well, having a life of nearly twice cast iron.

The shoe and wedge are thus made to have exceedingly long life and durability and repairs are greatly facilitated.

The hub face of the cast steel box is generally babbitted and run against a cast iron or brass liner on the wheel center.

This liner, however, seems unnecessary, for babbitt should run very well upon the cast steel wheel centers.

The shoe and wedge face should be oiled by small holes drilled through from suitable oil pockets on the top of the box.

Before the days of heavy engines, the most common method of spring location was directly over the box, with a spring saddle encircling the frame and resting on the top of the box, but with wide fireboxes and large boilers this location is impracticable, and today springs are usually located either below the box or between the boxes, in the latter case either below the frame or between the top and bottom bar.

The location directly beneath the box with a separate spring for each journal is by all means the best, as it insures nearly equal distribution of weight on each spring with the lightest possible consistent with the weight to be carried. When placed below the box the most approved connection is with long hangers encircling the flanges of the box and resting on the top. Another method is the use of bolts running up through the flanges with the head bearing on the top of the box, also a single bolt across the bottom of the box and parallel with the frame.

The long hangers mentioned first place the load directly over the center of the bearing and give practically the same distribution of weight as the old saddle.

When taking down boxes they can be removed as soon as springs are taken out, and leaves the box so much lighter and easier to handle. On engines having wide

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fireboxes, where springs for axles ahead of the firebox can be placed over the frame, there is no necessity for changing the design of the box for the rear drivers, and further the same design of box can be used on several different classes of engine. With the bolts running down through the box it is necessary to make the flanges considerably heavier to provide proper strength through the bolt hole.

In locating the pockets on the top of the box for the first style mentioned they should be placed at an equal distance from the outer edge of the box and as near the edge as possible to prevent danger of the box tilting on the bearing.

The use of small movable plate on the inside of the cellar is very desirable, as it facilitates convenient inspection of the packing and if properly fitted will not cause trouble from leaking.

In using spring hangers encircling the flanges of the box they should be designed so that they will not interfere with the convenient removal of the cellar bolts for packing driving box cellars.

The oil pockets on the top of the box should be as large as possible and the oil holes should be drilled at an angle instead of vertically.

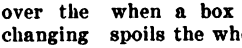
MR. GEO. DICKSON (Great Northern Ry.): There have been three successful kinds of driving boxes, namely, box with the segment brass, box with the three pieces of brass dovetailed into the box and the intervening spaces filled with babbitt, and the box with the solid brass pressed into place and held by two bevel lugs at each side of the box.

I believe that an oil cup is a very important factor in maintaining a cool running box, especially on engines making long runs between stops. The engineer should do as little oiling through the sponging as possible. After that he finds his cup is reliable. The oil from the cup is clean and is free from grit and should add greatly to the life of the journal and brass and be more economical in the use of oil.

I do not favor babbitt strips in a driving brass. They get loose and work out, or, if the brass gets hot, they run out and rob the brass of its proper amount of bearing.

'Where babbitt strips are put in and the grooves are cored the core leaves a sandy edge, which is sometimes the cause of a hot box. I also would prefer brass hub plates to babbitt plates. Babbitt catches the dirt and in some cases becomes loose and is lost. Especially is this the case with switch engines. And when a box runs hot it melts out and spoils the wheel hub.

The cost of babbitting boxes out of good babbitt is equally as much as the cost of the brass liner, which I believe to be more durable. I know that a good many will not agree with me on this point, for this is the babbitt age, or it is rather the fashion at the present time.—North-West Railway Club.



Value of Discussion.

PRESIDENT A. D. PARKER: We are here not only as a body of men who come to listen and take part in discussions which appertain to our special branch of railroading, but we come here to learn as much as possible upon subjects with which we are not so conversant. I will say I have learned more by standing face to face with practical men than I could have learned in any other way. The way to learn railroading in the most thorough way is by adding from time to time to our store of practical knowledge. I have listened with the greatest earnestness to the gentlemen of this club who have in the past appeared before the meetings in their discussions upon topics which were out of my line, and I have gone out and tried to make the practical tests which they suggested and place them upon my camera. My camera—unfortunately for some people—is in the form of figures; but I have made practical tests, as I have heard questions brought before the meetings by those having had a great deal of experience, and I have benefited very greatly by them. The man, in my opinion, who thinks he knows all about railroading, even in his own line, will some day learn he knows an infinitesimally small portion.

I am satisfied that the various railway clubs which have been started in the different centers of the country are doing their work in a better manner to bring out strong men in the railroad world than could be done in any other way.

There is one thing which is always unfortunate in any club of this nature, and that is that the official, the sub-official and the subordinate meet together, and this is unfortunate for only one reason. We are apt at times to feel our tongues are tied if the official who is over us in our railroad work happens to be present, and we do not enter into a discussion as earnestly as we might otherwise. I say, gentlemen, that each one of you has a right in these halls to express yourselves just as you

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wish, because, as a member of this club, one man is equal to another, and if you keep that understanding, with courtesy and decorum, I say that we can express ourselves fully and completely. I would not give a passing thought for the man in my employ who did not have an opinion of his own, nor for the man who hires a man and thinks that the latter is not in a proper position to have views of his own. We must all feel, when we are brought together at these club meetings, satisfied, as gentlemen, to express our opinions, and the more we express them, the more light we can have on the subjects under discussion. Every one of us must not hesitate to ask any question which might bring us enlightenment upon a certain topic.—Rocky Mountain Railway Club.



Leaky Flues.

MR. LAWES: History repeats itself. When I first started railroading we used to have wood burning engines, and used the cast iron thimble at the end of the flues, necessarily, on account of the flues being brass with copper ends, and the reasons given for using those cast iron thimbles instead of wrought iron was, that if you take a wrought iron plate, heat it and let it cool several times you will find that it will contract. That is the result of experiments made by a committee of the Master Mechanics Association twenty years ago. I tried wrought iron thimbles and they contracted very easily, but the reverse is true of cast iron thimbles; they increase in size by repeated heating, and if you want to get any results from a thimble it will have to come from the use of a cast iron thimble. We built some engines with two and a quarter inch flues with the idea of trying an experiment. A cast iron thimble necessarily would have to be heavier than a wrought iron thimble. On a 2-inch flue you contract the space too much when a thimble is used, so we are going to try thimbles in 2¼-inch flues.

In regard to water spaces between flues: we are going to put in flue sheets in one or two engines with increased water space and allow the front end flue sheet to stay in, which we can do by making pockets in the front end flue sheet and thereby avoiding expense if it is not successful. And I may also relate one other of our experiments. We put six longitudinal braces between the back flue sheets and front flue sheets, uniformly distributed over the flue sheets, and we kept records of the flues of that engine for one year, and we found they leaked as badly with the braces as without them. Somebody suggested the braces would be advantageous in that they would prevent leaky flues, but it was not so.

MR. J. A. CARNEY (C., B. & Q. R. R.): It is my opinion that the entire cause of leaky flues is due to poor water, it does not make much difference whether steel or iron flues, with or without copper ferrules are used. My idea of the cause of leaky flues in bad water districts is that scale accumulates on the flue sheet and acts as an insulator between the cooling effect of the water in the boiler and the flue sheet and as a consequence the flue sheet gets heated hotter than if there were no scale. If you can keep the flue sheet cool and the flues cool, there is no trouble from leaky flues, but the moment they get overheated they become distorted and it is almost impossible to keep the flues tight.

Some years ago I rode on a locomotive on an Eastern road and I asked the engineer how often the engine was washed out. He replied, every thirty days, and volunteered the information that they washed out as a matter of practice, but that the engines would run sixty days and even longer without trouble. In our practice, if we do not wash out every round trip, in some cases we get into trouble with our flues. It is my opinion the cure for locomotive flue trouble is water purification.

MR. SLATER: At the present time I am fortunately connected with a division that has pure water; we are having little or no trouble with the flues excepting where the engine is not properly fired. If, by the carelessness of the fireman, the dump grate is allowed to become bare and a rush of cold air causes flues to leak, proper firing will dry them up again. There is the question of the firebox. On the division I am connected with, we can run engines with patched fireboxes and have no trouble with them, while on other divisions of the road they can not be run at all.

At one time I was connected with a part of the Northwestern road where we could run an engine all summer without any washing out, and have no trouble with it; we have had engines in construction work, but paid no attention to them the entire summer season. On that division at the present time a portion of it is blessed with good water and they do not know anything about leaky flues, but in the southern portion of it, with limestone

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deposits, they have so much trouble they do not know how to overcome it. They had the same enginemen, same mechanics, same engines, so that it is certainly a question of water.

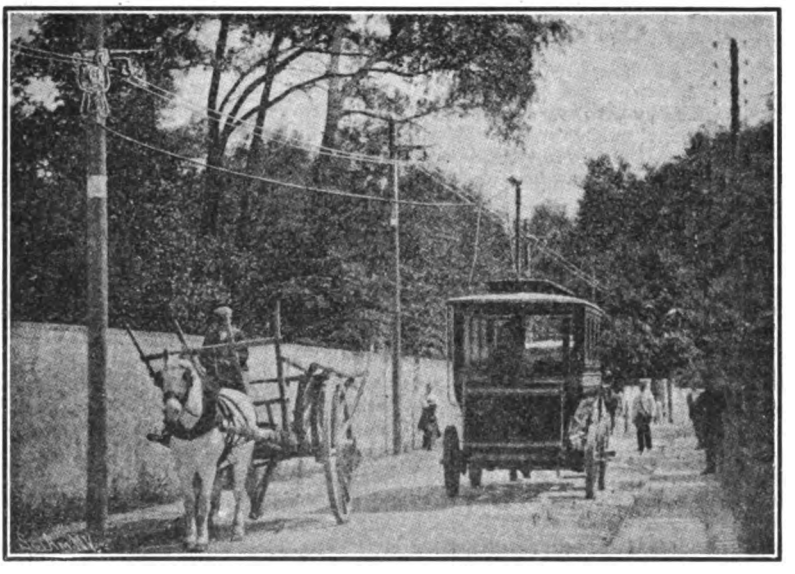
MR. F. D. FENN (Crane Co.): I have a recollection of an instance where we had an engine with leaky flues on our division that burned her fire very hard at the rear end of the firebox; we changed the diaphragm so that we made the draft come up farther towards the flues and burn the fuel more evenly over the grate. We found a great difference: the flues stopped leaking and we did not have any more trouble with that engine for a considerable time. Before that, every time we would open the firebox door the draft was so severe at the firebox door that it would jerk your shovel, and when we changed the diaphragm so that it drew the draft through towards the front end of the box we did not have leaky flues on that engine for some months.

MR. LAPE: The subject of leaky flues is one that I believe has agitated the minds of railroad men ever since there has been a railroad. There are causes, for some may be in the workmanship, some in the manner in which the flues are put in, others in the manner in which the boilers are constructed.

I have heard a gentleman make the remark that the narrow firebox, deep firebox did not give as much bother as the big, wide ones. I believe he is correct, for the reason that the flue sheet in the narrow firebox is not more than two-thirds as wide as that in the larger firebox; it does not have that expansion and contraction.

Another thing that is the cause of leaky flues, in my mind, and nowadays more so than it used to be when we had deep fireboxes and smaller boilers, is the fact that we had short flues; there was seldom a flue that was over twelve feet long; now, we have them as long as eighteen or twenty feet; you can think of the flue of that length swaggering in the boiler.

Another thing is that we are using ½-inch, ⅝ and ¾-inch flue sheets. You can see the amount of flue that is exposed to heat and not protected by the water. That is another thing. My practice in setting flues has been to drill the flue hole just to the outside diameter of the flue, that would be 2 or 2¼-inch flue, swage the flue, then take a copper ferrule made of 50-pound copper—I never used anything less than that size; I have used less, I used 30-pound copper, but it was a failure; I have set flues without any copper at all and it was a failure



A MOTOR TROLLEY LINE

This line extends from Fontainebleau to Samois, France. Vehicles are equipped with Lombard-Gerin motors, and meet and pass each other without difficulty

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even in good water. My idea is to swage the flue, put the copper ferrule into the sheet flush with the inside of sheet, and just the thickness, whatever the thickness of the flue sheet is to be, I should say just the width, and drive the flue into the flue sheet with a 12-pound sledge, turn the flue over, expand it well and roll it. I never allow any one to use a round mandrel on a flue; I think there are more flue holes spoiled by using a round mandrel than there are by using the rollers. Of course you can break a flue bridge by using the rollers; I have done it myself. Flues worked over in a roundhouse are often injured by boilermakers being in a hurry, on account of the engine being needed; they will jump in with a round steel mandrel and calk or mandrel up a set of flues, 50, 75, 100 or 150 flues, in about half to three-quarters of an hour, and it is all done at the expense of the flue sheets and the flues.

I have always watched the flue business pretty closely, and with all the washings I have had leaky flues, yet I have had fair success. I believe that a flue can be constructed, at least my experience teaches me such, that it will be a big benefit, especially to the long flue, and that is to put in the corrugated flue. I put a set of corrugated flues into an engine that was a poor steamer and was surprised to see how well the engine steamed and how much longer they lasted than the flues in other engines on the road. I got to looking the matter up and I believed that I had solved the problem. The corrugated flues were made of No. 13 wire gauge, while we were using a No. 9 flue; we got a great deal thinner flue, a great deal stiffer flue, and I am satisfied that there is not the amount of vibration in the corrugated flue from the fact that it was more than half lighter and a great deal stiffer than the big heavy flue.

Now, I know that bad water is a bad thing on boilers, a bad thing on the firebox, hard on the flues; poor workmanship is hard on the flues, and the results are bad. Large, wide flue sheets are hard on flues; you have that continual vibration, that flue expansion and contraction; if you do not have that, why does your front flue sheet eat out all around the flange? That is done by buckling, and if we could fall back to a narrow flue sheet and a thinner and stiffer flue than we are now using, we would overcome half of the leaky flues in our boilers.

MR. F. C. CLEAVER: I have had considerable experience with the leaky flue question, both in the narrow fireboxes and in the wide fireboxes. I was connected with a road a number of years where sometimes a firebox would not last over three years; I have replaced them in two years. That means pretty bad water. We were able to run flues in the narrow fireboxes from twelve to fifteen months without very much trouble from leaking. Recently I have been connected with a road some parts of which had pretty bad water. I recollect that we got ten wide firebox engines and I do not think there was one of them but what was leaking very badly inside of a week after we got them. We rolled the flues, gave them the usual roundhouse work, sometimes they would remain tight and sometimes would not. We found, however, after a year's use, that a large part of the leaky flue question was in the handling of the engine. After a fireman got to know how to fire the engine and the engineer how to handle it, the leaky flue question was very much better, and, towards the last, flues that had been in sixteen and eighteen months were giving very little trouble during the warm weather. As Mr. Lawes said, you have to look out for the first cold weather, simply because I think we neglect our flues; they are not so severely tried in the warm months, but when the cold air comes, the weak points develop, and you have got to protect yourselves against it.

I have found a very distinct advantage, and perhaps others have, in filing the flues before they are set. I have known the practice to be to put them in just as they come from the fire, and have found a very distinct advantage in the filing of the flue.

I believe that if a flue is understandingly set and well set, that very much longer service can be obtained, no matter whether the water is poor or not. I am thoroughly convinced of that.

The expander, as usually made in setting new flues or in resetting flues, is all right, if you use the proper expander for the proper thickness of sheet, but in their hurry boilermakers often get hold of the wrong expanders. Further than that, if they get the expander which belongs to a five-eighths or three-quarter sheet and put it in a flue that has been in service for perhaps a year and has the beads somewhat worn off, it does not have the same effect as if the flue were new, and that matter should be taken into consideration. I have used an expander that was so arranged that it did not tend to affect the inside of the flue when used on an old flue.

MR. DOEBLER: We had considerable trouble when we first got our large and

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heavy power, from leaky flues, and I think that a great amount of the trouble was traceable to the fact that the engines were not properly handled by the engine crews. Since the engine crews have become accustomed to the engines, firemen are educated in the matter of throwing the coal in the proper place, and our flue trouble has almost entirely disappeared.

We also are particular in taking care of the engines on the ashpits. As soon as the fire is drawn the dampers are closed; when the engine is put in the house we cover the stack to keep the sheets from cooling down too quickly by the cold air rushing through. We have tried with the five-eighth sheet resetting the flue hole to protect the bead, and we have found very little advantage from that, but I think the reason that we did not get any results was on account of the thickness of the metal, the amount of the metal in the flue bead, the protection after the engines cooled down. We have replaced a good many of those flue sheets, in fact, all of the original twenty-five we got about three years ago, with half-inch, 200 pounds pressure, and we are getting excellent results from them.

MR. LAPE: In 1872 and 1873, I had steel thimbles made and driven into flue sheets, in fact, we were fixing all of our engines at that time in that way. We had a great deal of trouble on account of bad water and one thing and another, and just converting our engines from wood into coal, and we also tried a copper end on the flue, about a two and a half copper end, and set the flue just the same as you would on the ordinary wood burner, and then drove this steel thimble in after to protect the bead, and the copper end of the flue. We found that was very expensive from the fact that the steel thimble would break out, the flue would be exposed and the first thing we knew we did not have any bead. We abandoned the copper end, and then set the flues as they are set today, and also substituted the steel thimble, but with similar results. You start an engine out with a full set of steel thimbles in it today, and she will come back in two or three days with probably half of them out. We tried also the cast iron thimble, but the results were about the same; it lessened the opening of the flue so much that it lessened the steaming. We abandoned that and since then have set the flues as I related here before.

I agree with Mr. Doebler in regard to what he says about the care of engines n the ashpit and in the house, but there are times when the transportation department is howling for an engine and she is leaking a little, and the boilermaker will jump in with a round mandrel and calk up the set of flues in about an hour, and that is one thing that is bad for leaky flues, and about as great a cause as anything I know of.

MR. M. H. WICKHORST (C., B. & Q. R. R.): It seems to me that there can be just one cause for leaky flues and that is a space between the flue sheet and flue. The question is just how it comes there. It is my observation that it occurs on the road, or even after the engine gets off the road, from the sudden admission of cold air. Considering now the effect of water, I reason it about this way: We have a temperature in the firebox of say about 3,500° F., and in the smoke box I found from measurement it runs anywhere from 600 to 1,200, or even 1,400° F. Well, if the temperature of the flue can be kept about the temperature of the water, that is, water kept against the flue without any intervening scale, you can keep the flue just about the temperature of the water, but if there is scale present, deposit from bad water, the temperature of the flue can run up anywhere, possibly up to 2,000°, or even more at the firebox; it can be readily figured out that if a flue is set in the flue sheet and fixed in a certain sized hole, that if it is raised to such a temperature it is bound to become permanently distorted, that is, we get what would amount to crushing strains of 50,000 or more pounds, which would produce a permanent distortion of the flue, and of course on account of that, and especially if it were to be cooled off suddenly from the 2,000 down to a few hundred, a space is formed between the flue and the flue sheet, and that starts a leak. Those contractions always occur from the inrush of cold air. I have seen just such things occur on the road where the explanation was very apparent. Now, the remedy—well, there would be two remedies. First of all, get pure water; which is forcibly brought out by Mr. Carney, so as not to allow this scale to form, and then not allow the temperature of the flue to get up, and, secondly, to avoid those currents of cold air. If we concentrate attention on those two things, it seems to me entirely probable we would get rid of practically all flue troubles and possibly all of our boiler troubles.

As to the point Mr. Miller brought out in his preliminary remarks about the expense of purifying water, I think where water is bad the number of engines in the

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shop will probably run over 10 per cent., I do not know but 15 per cent., but at any rate where we have bad water, we have engines held in the roundhouse for flue calking and more particularly for boiler washing, and probably 15 per cent. would be a low enough figure for the engines that we own and have not got in service—well, if, for instance, we, by means of pure water, could put some of these engines, say one-third of them, into service, and when we are in need of engines get our engines in that way instead of buying them, put a small amount of that money into water purification plants, we could well afford to equip any road that has bad water with water softeners and reduce in course of time the incrustation from 15 to 30 grains, down below 5 grains, under favorable conditions possibly 3 grains. In other words we could get back in engines what we gave out for softeners.

MR. CARNEY: Somebody was talking to me the other day about water purification in the boiler, and I told them it was a good deal like a man who filled his stomach full of mince pie, then followed it up with a dose of salts to digest the mince pie. I think the place to purify the water is before it goes into the boiler and not after. We have tried a great many methods of purification in the boiler, and none of them proved satisfactory, for the reason that the scale-forming material means a deposit of mud; the mud is still there, we have to wash it out. What we want to do is to get rid of that mud and scale-forming material before it gets into the boiler, and not try to give the boiler a dose of physic to cure it up afterwards.

MR. E. B. THOMPSON (C. & N. W. Ry.): It seems to me that after everything is said and done the only method of effecting a cure is to purify the water before it goes into the boiler, and I think until that is done the leaky flues will be always with us.

MR. MILLER: It seems to be the general consensus of opinion today that bad water is the cause of all our troubles. I do not think there is any question about it whatever; there can not be. We all know from hearing what those that are in the good water districts say; that they do not have any trouble with the flues, and everybody who are in what you may call bad water districts have grief all the time.

A good deal has been said today about the cold air coming up against the flue sheet. I do not think that in the good water districts the firemen and engineers are any better than they are in the bad water districts; I think there is just as much cold air gets into the firebox in the good water districts as in the bad water districts, but they do not have leaky flues in the good water districts, therefore the conditions, so far as that part of it is concerned, must be found somewhere else, and it still lies in the water.

Now, my personal theory about the cause of flues being leaky in the bad water districts is twofold. In the first place, there is bad circulation on account of the scale which accumulates around the flues, particularly at the bottom of the boiler, and anybody that has seen a set of flues knows that the bottom, fifty to seventy-five flues, are generally covered with mud, the spans being frequently filled solid. That causes an irregular heating of the flues, which heat is not conducted to the water, and makes it expand more or less irregularly, and, I think, produces more trouble than anything else. In the second place, after a flue has once leaked in bad water there is a thin coating of lime which accumulates between the sheet and the flue and keeps it from making a joint, and after that it is an impossibility to have that flue tightened without removing it, as you can not get that lime out. In some of our bad water districts we use soda ash to neutralize to some extent the scale-making tendency of the water. It is a curious thing that when we started we had the most awful epidemic of leaky flues; we thought our boilers were all going to give out at once. However, we kept at it, and in a short time the flues got very much better. The stationary boiler in one of our plants that had not had tight flues for more than two months, and on which we were going to remove the flues entirely, was treated in this way, and it was but a short time until the flues were perfectly tight, and, if I am not mistaken, those flues have not been taken out since, and that was over three years ago, showing that the lime between the flue and the sheet was what kept the joint from being made.

There is certainly not a doubt but that bad firing is a cause of leaky flues, but just as soon as we get a new fireman we will have bad firing, and some of the older ones have never learned to fire properly.

I have made a great many estimates on the saving made by purifying water; we can get any kind of results that we may want to figure out, but the difficulty with our superior officers, as it should

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be with us, is that they will not take mere estimates; we should be "from Missouri" when it comes to the question of purifying water, and it is necessary for us to have some positive facts and figures, but the beautiful thing about it is that you can not get them. If we can prove that we can keep our engines out of the shops with pure water a greater length of time, and that they will not be held at the roundhouse so long for washing out, and that they will not leak on the road, I say if we could show that saving in dollars and cents, I am sure every one in this room can get purifying stations on his road, but we can not show that; we can show how much it costs to purify the water, but in no case in which the figures have been made carefully do I believe that it is less than the cost of new setting of flues, and you will notice that I stated on the first page of the paper that it is very difficult to show by figures that it is cheaper *from a motive power standpoint* to purify water than to reset flues. I have been unable to do so myself.

Ned McGuire

By Peter McVicar

I'll touch my lyre for Ned McGuire,
The dashing engineer,
With lightning speed, on his iron steed,
He lives a wild career.

With rushing wheel o'er shining steel,
Swift as the gale comes he,
And loves to feel the trembling reel
Of his engine running free.

The pistons flash and the drivers crash
To the mighty main valve's throw;
She is geared ahead at her fastest tread,
And the motion glides below.

With a piercing scream, and the furnace gleam
From the earth to gloomy sky,
With the hissing steam and a headlight's beam,
The night express goes by.

Oh! far and nigh with his watchful eye
He scans the gleaming rail,
With hand so light on the throttle bright—
A hand that ne'er will fail.

In the midnight gloom o'er the Wabigoon,
Rushing the night mail through,
What a run she made down the Quarry grade,
When, crash! went a bursted flue.

Quick to the deck in the awful wreck
Sprang the gallant Ned McGuire,
And saved his mate from a dreadful fate
In the steam and blazing fire.

Poets may rave of the battle brave,
And cannon's belching fire,
We'll give a cheer for the engineer,
Brave-hearted Ned McGuire.

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The Explosion of Modern Locomotive Boilers.

DURING the past year or two a number of boilers have exploded on comparatively new locomotives, and the fact has excited little comment. As far as we know, the contributing causes have not been discussed nor have the proper remedies to prevent a recurrence of such disasters been publicly suggested. The initial cause of the explosion of new boilers has always been attributed to low water, and there are several good reasons why this is the correct one. In these days it is not at all likely to be due to either poor material or bad workmanship. The manufacture of steel plates for boiler shells and fireboxes in this country is now so perfect that a uniform product of fine quality can be exepected from all the mills.

The Master Mechanics' standard specification for boiler plates, or a slight modification of it, is now in general use by the railroads and locomotive builders, and by the system of inspection usually employed, there is little danger of getting poor material in modern locomotive boilers. The use of pneumatic and hydraulic tools in boiler shops and the general improvement in the art of boiler making, which has been constantly going on, insures good workmanship, at least so far as strength is affected by the quality of work. There remains therefore only one other prominent cause for the explosion of new boilers, so far as the boiler itself is concerned, and that is faulty design.

We propose to consider this feature briefly as a contributing cause in connection with low water. The strength, or rather the weakness, of riveted joints was a frequent cause of the failure of locomotive boilers in years past. This, of course, is a matter of design. The report of the Master Mechanics' committee on reveted joints brought to notice a series of good designs for plates of various thicknesses, and these with improvements which have since been made, are now in general use. With the stayed portion of the firebox a more difficult problem has been encountered, and the state of the art in this particular can not be said to be so satisfactory. Accordingly we find that it is the firebox and not the shell of modern locomotives which is the weak structure, and it is the former which is destroyed when an explosion takes place.

We shall not now attempt to discuss the various forms of staybolts or the casualties due to their rupture, but desire to call attention to the failure of crown stays when the crown sheet is overheated, and to suggest a simple improvement in the design of fireboxes which would lessen the chances of any large area of the crown sheet being overheated when the water is low. If the slope of the crown sheet from front to back be measured on the drawings of locomotive boilers of any road, it will probably be found that there is no uniformity in the practice, and that little, if any, attention has been paid to this feature. Many of the boilers on one of the anthracite roads have a perfectly level crown sheet twelve feet long, and quite a number of these boilers exploded by blowing down the crown sheet. On the other extreme we find short fireboxes with quite a sharp slope in the crown sheet, as much as five or six inches in eight feet or three-quarter inch per foot. The average slope of crown sheet in common practice is about one-quarter to one-half inch per foot. One of the larger Western roads some time ago adopted a slope of five-eighths inch per foot as a standard for all new crown sheets, and one of its prominent motive power officers has recommended that this be increased to three-quarters inch per foot. In adopting such a standard a distinction should be made between Belpaire boilers, which have flat crown sheets, and radial stay boilers where the cross-section of the crown sheet is curved. As the important thing to secure is the least area of uncovered surface when the water line is below the highest point of the crown sheet it is evident that more slope should be given to crown sheets which are comparatively flat than to those which are curved in cross-section. It is probable that one-half inch per foot would be sufficient for radial stay boilers and three-quarters inch for Belpaire boilers. There is no objection to a generous slope in crown sheets, as the normal shape of the gas flame follows a curve well below the back of any crown sheet to the top row of tubes, and the space taken by increased slope is more useful as water space than for gas.

In the extreme cases of Winans fireboxes and the old Class I boilers on the Pennsylvania Railroad, each of which had a very pronounced slope, this feature was not found objectionable. It is true

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that many of the Winans boilers exploded, but this was due largely to poor material and workmanship, rather than to the slope of the firebox. We suggest to any roads that have not given this subject particular attention that they draw on the longitudinal sections of the various fireboxes horizontal lines one inch and two inches below the crown and then make a table of the slope in inches per foot and the number of square inches of sheet exposed by such a water line, and they will be surprised at the miscellaneous showing revealed. On existing engines no change can easily be made, but those having too light a slope should have the water glass and gauge cocks so arranged that a greater height of water will cover the highest point of the crown sheet when water first shows in the glass and is indicated by the gauge.

The three safeguards for detecting low water are the gauge glass, the gauge cocks and safety plugs. The practice in location of gauge cocks with respect to crown sheet is quite as various as the angle of slope of the sheet and on many roads would bear investigation with profit. The same may be said of gauge cocks; and these are often affected by mud and scale, which interfere with their correct indications. Safety plugs are the only form of automatic low water detectors which have been used on locomotives, and although many forms have been devised and filled with various alloys the best of them are far from satisfactory. The top of the plug often becomes covered with a hard scale, and even a thin coating of this material is sufficient to resist a high pressure and will prevent water from flowing through when the alloy is melted. Again, the alloy itself after long exposure to intense heat, changes its character and the melting point is so high that it will not liquefy when water is too low. Automatic low-water detectors operated mechanically have been used successfully on stationary boilers, and it might be seriously questioned why such a device should not be used on the boilers of our large modern locomotives. The earning capacity of such engines is so great that their proper protection from explosions due to the most frequent cause certainly warrants an expenditure greater than that for a smaller engine, and more than the insignificant cost of the unreliable safety plugs.

The Locomotive has recently shown by tables a close relation in numbers between locomotive boiler explosions and railroad collisions, and while this must be regarded as simply an incident, it suggests that all such disasters are more frequent in times of heavy traffic and when men are overworked and so tired that their faculties are not as alert as usual. At such times the chances are that something will be neglected which is essential to safe operation, and it is then that an automatic device, if reliable, would prove valuable. It may be objected that an automatic low-water detector for locomotives has not been designed, but we have sufficient confidence in the ability of the concerns which manufacture automatic lubricators, injectors and such fixtures to feel certain that they would soon meet a demand for such an apparatus, and we commend it to their attention as well as to the attention of railroads.

To summarize, we believe that the danger of explosion of locomotive boilers woudl be lessened by using a greater slope in the crown sheet than is now generally employed, in order to secure a greater depth of water on the sheet. More attention should be given to the location of gauge glasses and gauge cocks with respect to crown sheets, and some standard should be established for the slope of crown sheets in inches per foot and for the location of the gauges. The subject would be a good one for a report to the Master Mechanics' Association, as the illustration of boilers in the proceedings of that body shows quite a various practice, and one must be better than the others. A simple automatic low-water alarm should be experimented with by some of the more progressive roads, and the use of such a device in practice would soon lead to the invention of such a successful apparatus that it would in time get into general use.—Railway Age.



Starving Injectors.

It is not unusual for a large locomotive injector to throw 3,500 to 4,500 gallons of water into a locomotive boiler in an hour and yet such delivery is expected to be provided for through pipes no larger than were formerly used in connection with injectors which would deliver but 2,000 gallons in that time.

While great progress has been made in connection with other parts of locomotives, the injector connections have not been given the attention which they deserve and the locomotive has fairly outgrown them. In many cases the old standards have remained the same for about twenty years, notwithstanding the

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fact that locomotives have been more than doubled in capacity in that time. With increased boiler capacity and high steam pressure it is necessary to use injectors which will deliver a great deal more water than that which formerly sufficed, and the time has come for a radical change in this practice.

There seems to be no reason why at least 3-inch smooth-bore hose should not be used to connect with the tender tank. With this a free opening of 2⅝ inches may be obtained in the fitting. A strainer at the valve in the tank well may be used and the conical strainer in the pipe removed. This would permit of using much larger channels for the water to the great relief of the injectors.

It is not enough to enlarge the suction side alone, the delivery pipes and checks also appear to need attention. The duplex check fitting supplied by the Brooks Works, which is shown in many locomotive engravings in this journal, seems to be a very good device, because it delivers all the water on one side of the boiler, which seems to be better practice than to enter it in two places and in two directions. This, however, is not the main point of this criticism. The free and unobstructed opening for the water is what is needed. A check that will lift but 1-16 inch for a No. 10 injector connected by a 2¼-inch pipe is not sufficient, yet this has been found in a recently built locomotive. Such an injector needs at least an even equivalent to a 2-inch hole. In one of the reports presented to the Master Mechanics' Association last June the following suggestions occur:

"As the water evaporation is heavy, a good inlet from tank to injector should be provided. A majority of the manufacturers prefer the following sizes of feed-pipe in connection with the different-sized injectors:

"No. 8, not less than 2 inches internal diameter.

"Nos. 9 and 10, not less than 2½ inches internal diameter.

"Nos. 11 and 12, not less than 3 inches internal diameter."—American Engine and Railroad Journal.

* * *

Electric Trolley Wagons and Omnibuses.

The peculiar character of the streets of many German and French cities renders it often impossible to install electric tramway systems. With the development of the automobile, however, a means has presented itself of placing these thoroughfares in better communication with other portions of the city. The systems of transportation to which we refer may be regarded as a combination of the electric car and the omnibus, for the vehicles derive their motive power from an overhead current, but do not run on steel rails.

Two such systems of electric trolley omnibuses have been proposed. One bears the name of its inventor, Mr. Max Schiemann, and is exploited by Siemens & Halske, of Berlin, and the other is known as the Lombard-Gerin system. The Schiemann system has been operated on a line extending from Konigstein-Hutton through the romantic valley of the Biela. The length of the line was originally 2.8 kilometers, but it has been extended nine kilometers, and now operates between Konigstein-Hutton and Konigsbrunn. The roads are very good, so that a speed of twelve kilometers per hour is easily maintained. Auto-omnibuses, motor-cars, and trailer cars are used, the first being employed for the transportation of light express matter and the latter for the hauling of coal and the like. Steering is effected by means of the front wheels of the first car of a train, since it has been found that the wheels of the second car will track after those of the first. The trolleys employed have a sliding contact, one trolley being placed at each end of the bus or motor car.

In passing an ordinary conveyance the omnibus is simply steered to the right or to the left a possible distance of about three meters from the trolley line. In passing another omnibus coming in an opposite direction, it is of course necessary, under the circumstances, to remove the trolley poles from one conveyance while the other moves along. The motor-cars used to haul the freight trailers weigh four tons each and have a carrying capacity of one ton. Each trail car weighs 1.5 tons empty and 5 tons loaded, from which it follows that the total weight of the loaded trains is 10 tons. The seating capacity of an omnibus is about twenty-six persons. The cost of construction is about $800 per kilometer.

With the Lombard-Gerin system, readers of the Scientific American are not unfamiliar. The system utilizes two overhead wires; one positive and one negative. Instead of driving the vehicles entirely by motors connected up with the axle, an auxiliary device called an "automotor trolley" is used which runs along the overhead wires. In other words, the

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vehicles are towed along by a self-propelled motor trolley. The towing trolley is driven by a 3-phase induction motor suspended between two conducting trolley-wires. The motor is carried in a frame which also has bearings for the two trolley-wheels. Motion is communicated to the trolley-wheels by the revolving field of the motor.

The current is fed to the trolley motor from the omnibus motor, which latter may be regarded as a combined rotary transformer and direct current motor. The trolley motor travels with a speed somewhat in excess of that of the car itself. From this peculiar arrangement of causing it to lead the way, as it were, the Frenchmen have termed the auto-trolley "the blind man's dog."

The Lombard-Gerin system has been tried on a line extending from the village of Samois to Fontainebleau, a distance of about five kilometers. On this line the car or omnibus is driven by a double motor operating at a tension of 500 volts direct current. The time taken for the journey is about twenty minutes. The total energy used is 543 kilowatt hours or 64 kilowatt hours per car kilometer.

It is stated that the low expense of equipment for a line of this character renders it of particular value for country districts, where an expensive track construction would be prohibitive on account of the small amount of traffic.

The Compagnie de Traction par Trolley Automoteur gives the ratio of expense to receipts as 58 per cent. and quotes the following as the expense of operation for this kind of line:

The electrical energy, at 25 centimes per kilowatt hour, amounts to 1,355 francs on 25 centimes, or 0.161 centime per car kilometer. The repair expenses of the carriages are given as about 776 francs, or 0.092 centime per car kilometer; and the working of the omnibuses with one man per vehicle is given as 456 francs, or 0.054 centime per car kilometer; while the general expenses amount to 307 francs and 55 centimes, or 0.036 centime per car kilometer. This makes a total expense of 2,895 francs or 0.343 centime per car kilometer.—Scientific American.

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A Great Sea Wall for Galveston.

Galveston today, while having a few scars left from the storm of September 8, 1900, to a stranger it seems as fair and bright as ever. Never before has the saying that "A touch of nature makes the whole world kin" been more fully exemplified than in the case of this beautiful city. Her people have grown accustomed to rocking along in their easy way, which comes from a long habitation in a warm climate, leaving the work of progress in the hands of a few.

When the skies cleared after that fatal September day, it shone upon a stunned people for a few hours, but then there awoke in the breast of every one the fact that the work to be done could not be left to a few, but all must unite in one common cause: helping the destitute and suffering and the clearing up of our city, and let the world see that, far from being a crushed and frightened city, they were worthy of their most generous liberality, which the world at large were so kindly bestowing upon them in their distress. As one united people they worked; yes, worked as none but those who had passed through it can tell, and even they do not realize what a tremendous undertaking they had. All of self was forgotten, and the only idea that permeated every brain was the duty to perform. After clearing away all scars they turned their attention to thoughts of protection from any repetition of such a disaster.

The question of a sea wall had long been talked of, but never brought to a focus, for lack of funds. It was decided that funds must be had and ways and maens devised for full protection. The most noted engineers of the United States were brought here to formulate plans, and they, after weeks of careful consideration and study, submitted plans for a sea wall to extend around the gulf side of the city, as no damage ever comes from the bay. Then came the question of funds. Provision was asked of our State to permit the county to vote upon the issue of $1,500,000 bonds for building this sea wall. An election was held and resulted in only twenty-two dissenting votes in the entire county. Preparations were begun at once to issue these bonds, and her own citizens came forward and liberally subscribed for $1,250,000 to show their confidence. Not only did the rich subscribe for these bonds, but all classes added their mite; and the laboring man, supporting his family by daily labor, came forward to do his share by subscribing, making monthly payments until they were entirely paid up.

Money sure, a competent engineer was employed for drawing up plans and specifications and superintending and letting of contract, and the building of the wall.

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The contract has been let at a cost of $1,294,735, wall to be completed within fifteen months. The work is now well under way; pilings are being driven for the foundations. The sea wall will be of solid concrete, 3⅓ miles long, 16 feet high, 16 feet at the base and 5 feet at the top. This will be backed up by 100 feet sand filling for protection, and twenty-seven feet of rock filling in front of the sea wall to protect it from undermining. For 35 feet back of the wall will be a brick walk and driveway, the balance of the embankment covered with grass.

To give some idea of the immensity of this construction will say, it will require 9,990 cars of piling; 5,200 cars of concrete; 100,000 tons of rock and 120 tons of re-enforcement rods. That the city may be raised to give proper drainage, an additional security, Galveston will ask the next Legislature to permit them to use the State's proportion of the city taxes for fifteen years for this purpose. If the State grants this request, bonds will be issued, secured by this taxation, and the sale of bonds will make the money available for the filling at once. This work will take some time, but it is expected that this can be done within the next three years. It is considered that this permission to use their taxes will be a good investment for the State from the fact that it will materially increase the taxable values of the city, and after the expiration of fifteen years this increase will be a decided source of profit to the State.—The Tradesman.

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Railway Operation vs. Railway Speculation.

We have often referred in these columns to the essential difference between railroad operation and railroad speculation, which are too often confounded in the minds of those who glibly discuss railroad questions. The New York Commercial hits the nail on the head when it says, "It is necessary only to compare the representative railroad managers of today with those who were in control of the principal railroads thirty or forty years ago, to realize the complete change which has occurred in the character and aims of the managements of the railroads. The railroads of the country at present are under the management of experts who understand the theory as well as practice. Their sole aim is to place the properties under their control on a permanently profitable basis, and they realize that the only way in which this can be done is by developing traffic within the territory served by their lines." The speculator who deals in Wall street, operates with an entirely different view. He makes or loses his money through the manipulations of securities which sometimes represent a railroad and at other times a steel company, but in either case without reference to the business itself. The business of railroading is now being studied as never before. Experts in all departments are rapidly bringing order out of chaos, and the time is not far distant when the line of demarkation between operation and speculation will be not only sharply drawn but thoroughly understood. —Railway and Engineering Review.

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Wireless Telegraph Calls on Ocean Steamers.

It is a common thing nowadays to have one of the telegraph operators employed on the great ocean liners relate that during certain trips of the steamer he was in constant communication with the land and passing steamers during the entire passage across the ocean. It will interest our readers to learn that each steamer has its call the same as every telegraph office. Thus, the call for the steamer Kronprinz Wilhelm, is K. P., and the call for the steamer Philadelphia of the American Line, is P. H., and the other steamers equipped with the Marconi system have calls suggestive of their names. The telegraph operator sits at his instrument during the voyage and when he notices that his instrument is vibrating, he at once opens his key and says, for instance, "Who is it?" and then signs his call. If the vessels are going in opposite directions they will be in communication with each other from four to twenty-four hours, but if the vessels are going in the same direction it often happens that they are in communication with each other during the entire trip across the Atlantic and until the vessels are actually docked.—Telegraph Age.

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Burdened With Prosperity.

It makes little difference how much traffic increases from now on, the roads can not handle any more busness promptly than the volume they are now moving until they are able to secure more locomotives. Every one of the large lines is seriously short of this kind of equipment,

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and the situation is not improving. There is a good deal of congestion at some of the lake ports, where business is piling up from the steamship lines.

Some of the boats which have taken freight for Ohio ports with a view of transferring it to the railroads for points inland, have been unable to unload because the roads could not furnish cars.

It is hard to see how the West is going to be relieved promptly in hard coal supplies unless the roads are able to secure additional motive power. All the ore cars that can be spared from northern Michigan and Wisconsin are being hurried to the coal fields with the view of helping out the work of distribution as fast as the coal can be mined.

All of the roads running to the South are finding a good deal of difficulty in taking care of the business that presents itself. The general rate situation on all the Eastern and Southern lines is very satisfactory.—International Railway Journal.

Discipline That Hurts.

Railroad officials as a rule wish to treat their men fairly, but a great deal of injustice is inflicted on account of rules of discipline framed to inflict punishment for offenses and delinquencies, without providing credit for efficient service and good behavior. If there is to be a debit account maintained against a man, there certainly ought in justice be a credit account as well. The Brown system of "discipline without suspension" has been adopted by many roads in a modified form, and in some quarters it is much more unpopular than the old style of punishment, when a man was suspended for any serious violation of rules with the understanding that the punishment condoned the offense.

The system, as worked under Mr. Brown, was eminently a just way to manage men, as the credits were always liable to overbalance the debits; but the people who modified the system have, as a rule, modified out nearly all the credits. There was a time when a petty officer would go through a division like a roaring lion, discharging men right and left for offenses that were due to his own incapability. The Brown system cuts the teeth of this kind of tyrant, but it is only half acting when it permits him to put a debit against a man without providing a system of credits. Where this is done, it is only a matter of time when sufficient debits will be recorded against first-class men to have them discharged. A half acting system of this kind has depleted some roads of their best men, many of them having resigned before their time was due for discharge. On such roads the men look back longingly to the "good old days" when a superintendent suffering from a toothache would discipline with his tongue every man who came within reach of his voice, and there the end of the castigation would be. It is easier to stand a little unjust abuse than to feel day after day that a silent record is being built up against you from trifles that will soon bring ignominious discharge.—Railway and Locomotive Engineering.

Discipline.

The question of discipline among railroad employes has been discussed quite vigorously during the past month both at a meeting of the New York Railroad Club and in several railroad papers. It is an old, almost threadbare subject, as shiny as the dress suit of the oldest inhabitant. Yet it has a perennial freshness. Some advocate the Brown system and think that black marks will serve the best purpose if they culminate in discharge. Others ridicule that system and think it far better to punish the men that break the rules with a penalty which reaches his income. Everybody agrees that the purpose of discipline is not penal but redemptive. The object of it is not to cause the violator of the rules to suffer but to prevent a recurrence of the forgetfulness, carelessness, or negligence. The penalty is to be judged by the results. Does it stop or lessen the disregard of rules? If it does, it is successful; if it does not, it is a failure. We are of the opinion that the human element enters into the question of discipline to such a large extent that no ironclad rule or system can be expected to work equally well with all men. The man who is sensitive and whose feelings are easily hurt will be benefitted by a sharp reproof or by "marks" against him. Another, stolid, nerveless, dull, with a hide as thick as an African rninoceros, could only be reached by a summary "ten days to think it over." In all cases it makes a vast difference who imposes the penalty. If it happens to be a man who is disliked the person who pays it will feel and perhaps show resentment. If there is a suspicion of unfairness it will only provoke ill will, but if the punishment is made to "fit the crime" and the

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reasonableness of it explained it will prove effective in the promotion of good service and the steady advancement of the discipline of the force.

One railroad superintendent writes to the editor about the Brown System:

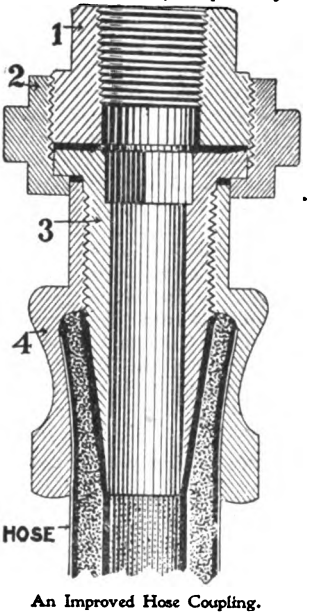
"This marking—adding to and taking off—is largely bosh, a kindergarten arrangement. Make notes of the good and the bad and when the proper time comes act. The proper time may be before any notes have been made."

Discipline must always be based upon knowledge of the men who are subjected to it. Each man is unlike every other. His temperament, disposition, habits and character must be known if he is to be wisely disciplined. Certain general principles must have general and uniform application, but under those principles men must be dealt with according to the individuality of each. Discharge, immediate and irrevocable, is the only way to deal with some men. A man who, for example, proves himself to be false, to whom lying is not only a fixed habit but evidently incurable, whose word can never be depended upon and who lacks all sense of honor—such a man is always a menace to good discipline and has no place in any organized force of men. A man who has broken the rules regarding drink may be helped by discipline. The penalty which he pays may and often does rouse him to a sense of his danger, and he may be able to overcome the habit which is not yet his master. It depends upon what the trouble is and it depends also upon who the man is that makes it. Nothing is a greater aid to efficiency in discipline than quiet self-possession in the man whose duty it is to enforce it. Noise and power are not the same thing and railroad men know it. The pop-valve doesn't run the train. Steam in the cylinders makes no noise unless there is a leak! Bluster in the "boss" induces it in his force and ruins discipline. The men are not likely to keep their temper if the collar of the one to whom they look up is hot continually. Not that vigor of speech is not sometimes required, but self-possession gives a man the mastery of others as one of its compensations. "Greater is he that ruleth his spirit than he that taketh a city."

Where discipline is best, employment is most desirable. Good discipline implies fair, impartial treatment. A man is never punished vindictively or as a result of passion. The improvement of the force, the safety of life and property are the prime considerations. To serve the public well the railroad company must have a well trained and well disciplined force. Rules prevent disasters and safeguard the life and limb of the employes. The man who, because of his makeup, will not, or can not, submit to be controlled by them is not fit for railroad employ. He should leave it, voluntarily if he will, but forcibly if he must. He is a source of danger to efficient, safe and economical railway operation.—Railroad Men.

An Improved Hose Coupling.

Many dollars are annually wasted by leakage in compressed air lines. This waste is principally at the points where connections are made with the main line rather than in the main line itself. The accompanying illustration shows a hose connection, which has been designed to obviate these losses, especially when



An Improved Hose Coupling.

working under heavy pressures. The "G. E" hose coupling, as it is called by the makers, holds the hose securely compressed in a metal pocket, without the use of outside clamps.

Another feature claimed for this coupling is the increased size of the air passage, which is larger in the G. E. coupling than is possible in the old style couplings, where the hose is drawn over the corrugated end of the coupling. This coupling is suited for working under very heavy pressure. The ordinary coupling, although it fastens the hose to the coup-

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ling with clamps, will not prevent leakage at the end of the hose. In the G. E. coupling, the end of the hose is in a metal pocket and leakage is impossible.

As will be seen from the illustration, the coupling is of substantial proportions, and designed to give long wear. It consists of four parts, and is entirely self-contained, not requiring the additional purchase of hose clamps, nor involving the expense of their renewal.

Other advantages claimed for the G. E. hose coupling besides those above mentioned include its efficiency when working under heavy pressures. The first couplings made were tested to 700 pounds pressure without leaking. Its substantial propositions and the absence of projecting bolts secure a longer life than is possible with the old style couplings using outside clamps.

In the G. E. coupling, the hose is firmly secured by the pressure of the tapered portion of part 3, the latter being screwed into part 4 by means of the square socket at the larger end. There are several slight depressions in the walls of part 4, into which the pliable hose imbeds itself, making it impossible to withdraw the hose until uncoupled. A rubber gasket is used between the faces of part 1 and 3, and in making connections with this coupling, part 1 having a female end, may be attached directly to the pipe line without the expense of a pipe coupling.

The couplings are manufactured in both malleable iron and brass by the American Engineering Works, of Chicago.—Engineering and Mining Journal.

* * *

The Movements of Traffic.

To all appearances the volume of traffic on American railroads will continue at its present dimensions. Probably never before has a more general feeling of confidence prevailed among any class of railroad officials regarding the outlook for traffic than is felt among the Western contingent at the present time regarding the outlook for 1903. A canvass of the officials representing the principal Western roads today failed to find a single one who was not of the opinion that the volume of traffic and earnings on the roads during 1903 would be far in excess of the figures for the current year.

One particular fact is emphasized, and that is the rate situation, which is said to be perfect. The large amount of east and westbound traffic has given all of the railroads as much business as they can possibly handle with their present equipment, and there has been no incentive for cutting rates.

Traffic in many business instances is being actually forced upon the railroads, and they get more than they can handle without solicitation. The rate situation throughout the West is reported as being almost ideal.

This maintenance of the scheduled tariffs is one of the main reasons of the excellent showing of earnings which the Western railroads generally made during October.

Officials of the Rock Island, the St. Paul, the Northwestern, Northern Pacific, Burlington, Great Northern, Union Pacific and Missouri Pacific all agree in the belief that the earnings of these roads during 1903 will exceed by far the returns of the current year.

Many of them express the most optimistic views, and state that while the earnings of the railroads in every section of the country will probably show large increases, the Western railroads will make much the best showing.

The amount of traffic now offered their roads, it is said, is taxing to the utmost their entire equipment. The main trouble is with the motive power. There are not enough engines to move the trains and the accumulation of business keeps the sidetracks filled with cars.

And this condition exists before the new cereal crops have begun to move in any volume to market.

Very little grain has begun to move, though all the elevators are reported full. When this traffic begins to move, the railroads will have still more difficulty in handling all of the business offered them. In addition to the regular traffic there has been a steady influx of settlers from the Eastern States throughout the West, and this movement promises to surpass all previous records during the next few months.

The land departments of the different roads report large increases in the amount of land sold, and this means not only an increased revenue to the roads, but a large increase in the permanent volume of traffic, as the territory along the lines becomes more thickly settled.

Another favorable faction mentioned is the even distribution of the traffic. A smaller proportion of empties are reported as being hauled than ever before in the history of the roads. Each eastward train is loaded with grain, minerals or live stock, and goes back at once laden with high class freight, and this condition

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promises to extend well into the winter.

This has enabled the operating officials to handle the traffic more economically than ever before.

The uneven movement of traffic, it is said, was in the past a great handicap to the economical operation of the Western roads. The large cereal crops always gave the roads as much eastbound traffic as they could reasonably desire. The westbound traffic, on the other hand, during many years, was so much smaller than the eastbound that a large percentage of the freight cars had to be hauled back empty.

This not only reduced the revenues of the roads, but entailed upon them an additional expense, and made impossible a large average trainload.

The westbound traffic, however, during the last two years has been all that the railroads could desire. The large cereal crops since 1897 have resulted in giving the West more money than it ever had before, and it has been purchasing liberally of Eastern manufactured articles. The result of the purchases has been not only to increase the revenue of the Western roads, but to give them the more even movement of traffic.—International Railway Journal.

Regulate Street Railway Capitalization.

It would seem reasonable that the same restrictions that are placed upon steam railways to prevent excessive issue of stocks and bonds should be applied to electric lines which are rapidly entering the field of common carriers. Yet this is not yet the rule. In Pennsylvania, for instance, the State department of railways states that the capitalization per mile of street railways is more than twice the average cost of the steam railways of the United States, and that the bonded indebtedness of the street railways more than equals the cost of the roads and their equipment; showing, it says, "that in many cases, at least, there was little if any cash actually invested in the stocks." It is also noted that one company may have many times the amount of capital stock and bonded indebtedness outstanding that another corporation requires, which has been constructed under similar conditions. There is danger that electric railways in many other States than Pennsylvania will repeat the mistakes of overcapitalization and overbuilding which wrecked so many of the steam railway corporations of the country a few years ago.—Railway Age.

The Men at the Head of the Train

The great iron horse, in its strength and its power,
Stood there all impatiently waiting the hour,
When the Master should stand, with the throttle in hand,
And bid the great monster speed over the land.
And I prayed a brief prayer as it sped o'er the plain,
"May God bless the men at the head of the train."

How it trembled and shook, as if eager to start,
And you watched the quick beats of its great iron heart.
With gigantic nerve, it sweeps 'round the curve—
A Master indeed, but one ready to serve,
And I silently prayed once again the refrain—
"May God bless the men at the head of the train."

When the day is far spent and the night is at hand,
And lengthening shadows fall over the land,
When their last run is made, and the engine is stayed,
May they meet the great Master with hearts undismayed,
So sure of the heaven they've striven to gain,
May God bless the men at the head of the train.

—Lottie Hay Meredith.

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Enginemen's Course in Arithmetic

By W. S. Carter

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Mensuration

131.—Areas of Polygons. In *Art. 128* it was shown that the area of a polygon is a definition of its superficial extent, or the amount of space enclosed by its sides. It was also shown that areas are measured with square measure, and processes involving square measure were explained in the February, March, April and May (1902) Magazines.

Prop. XIX.—The area of a triangle is equal to the product of the base multiplied by half the altitude.

(In Fig. 20 suppose the altitude a d of the equilateral triangle a b c to be $10\frac{1}{2}$ ft., and the base c b to be 12 ft. The area of the triangle will be 12 ft. $\times \frac{10\frac{1}{2} \text{ ft.}}{2}$ or 12 ft. $\times$ $5\frac{1}{4}$ ft. = 63 sq. ft.)

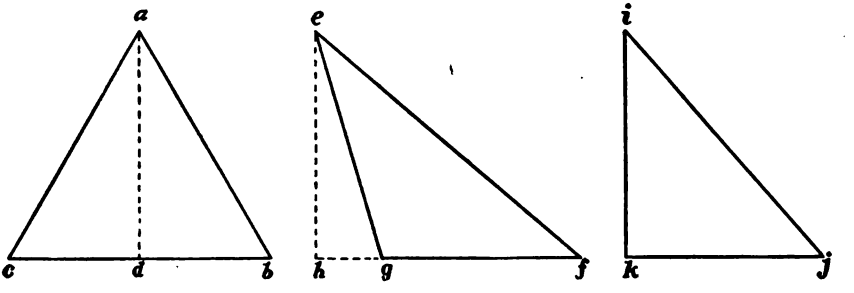


FIG. 20.—AREAS OF TRIANGLES.

Prop. XX.—The area of a parallelogram is equal to the product of the altitude multiplied by the base.

(In Fig. 21 suppose the altitude k j of the rhomboid g h i j to be 10 ft. and the base j i to be 20 ft. The area of the rhomboid will be 10 ft. $\times$ 20 ft. = 200 sq. ft.)

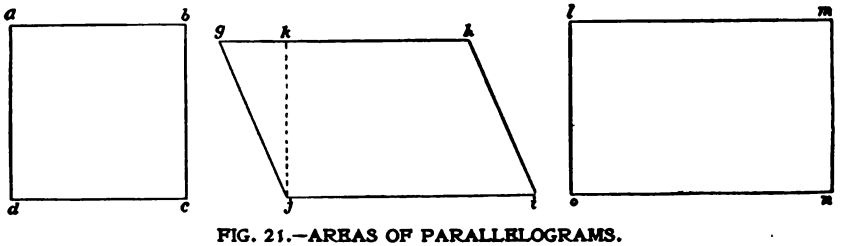


FIG. 21.—AREAS OF PARALLELOGRAMS.

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Prop. XXI.—The area of a trapezoid is equal to the product of the altitude multiplied by half the sum of the two parallel sides.

(In Fig. 22 suppose the altitude e d in the trapezoid a b c d to be 10 ft., the base d c to be 12 ft., and the parallel side a b to be 25 ft. The area of the trapezoid will be 10 ft. $\times \frac{12 \text{ ft.} + 25 \text{ ft.}}{2}$, or 10 ft. $\times$ 18½ ft. = 185 sq. ft.)

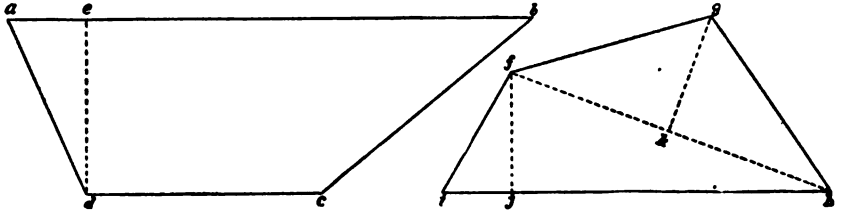


FIG. 22.—AREAS OF QUADRILATERALS.

Prop. XXII.—The area of any regular polygon is equal to the sum of the areas of the triangles formed by drawing lines from its center to all of its angles.

(In Fig. 23 suppose the side q p of the hexagon l m n p q r to be 10 ft., and the apothem o s to be 8.7 ft. The area of the triangle o p q will be $\frac{8.7 \text{ ft.}}{2} \times$ 10 ft., or 4.35 ft. $\times$ 10 ft. = 43.5 sq. ft. As there are 6 triangles, and all are equal, the area of the hexagon will be 43.5 sq. ft. $\times$ 6 = 261 sq. ft.)

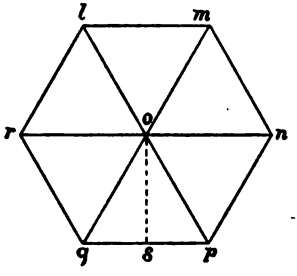


FIG. 23.—AREAS OF POLYGONS.

NOTE I.—When all of the sides of a triangle are known, and the altitude is unknown the area of the triangle may be found as follows: (1) From half the sum of all the sides take each side separately. (2) Find the product of the three remainders and half the sum of all the sides. (3) Extract the square root of the product: the result will be the area of the triangle.

NOTE II.—When the necessary dimensions of a trapezium can be ascertained by measurement, the area is found as follows: (1) Divide the trapezium into two triangles by drawing a diagonal. (2) Drop perpendiculars from the vertex to the base in each triangle. (3) With scale ascertain the dimensions of altitude and base of each triangle. (4) Find the area of each triangle separately, as shown in Prop. XIX. (5) The sum of the areas of the two triangles will be the area of the trapezium.

132.—Problems Involving Areas of Polygons.

Prob. 15.—If a piece of sheet iron is of similar form as the scalene triangle e f g, Fig. 20, and the altitude e h is 26 in. and the base g f is 23 in., what is the area of the sheet of iron in square inches? *Ans.* 299 sq. in.

From Prop. XIX: The base = 23 in., and half the altitude = 13 in., and 23 in. $\times$ 13 in. = 299 sq. in.

Prob. 16.—If the perpendicular side, or altitude i k of the right angle triangle i j k, Fig. 20, is 60 ft., and the base k j is 54 ft., what is the area of the triangle? *Ans.* 1,620 sq. ft.

From Prop. XIX: 54 ft. $\times \frac{60 \text{ ft.}}{2}$, or 54 ft. $\times$ 30 ft. = 1,620 sq. ft.

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Prob. 17.—If the base d c in the square a b c d, Fig. 21, is 8.75 in., what is the area of the square? *Ans.* 76.5625 sq. in.

From Prop. XX: A square has four equal sides, and has four right angles; therefore, the perpendicular sides are equal to the altitude, and the altitude is the same in length as the base. 8.75 in. × 8.75 in. = 76.5625 sq. in.

Prob. 18.—If the rhomboid g h i j, Fig. 21, has the altitude k j = 5 in., and the base j i = 10 in., what is the area of the rhomboid? *Ans.* 50 sq. in.

From Prop. XX: 5 in. × 10 in. = 50 sq. in.

Prob 19.—In the rectangle l m n o, Fig. 21, suppose the altitude m n is 16 ft., and the base o n is 24 ft., what is the area of the rectangle? *Ans.* 384 sq. ft.

From Prop. XX: 16 ft. × 24 ft. = 384 sq. ft.

Prob. 20.—A piece of land similar in form to the trapezoid a b c d, Fig. 22, has the following dimensions: The base d c = 1,875 ft., the parallel side a b = 3,930 ft., and the altitude e d = 1,600 ft. What is the area of the land in square feet? *Ans.* 4,644,000 sq. ft.

From Prop. XXI. The sum of the two parallel sides = 5,805 ft., half of which is 2,902.5 ft. Then, 1,600 ft. × 2,902.5 ft. = 4,644,000 sq. ft.

Prob. 21.—If one side of the hexagon l m n p q r, Fig. 23, is 8 in., and the apothem o s is 7 in., what is the area of the hexagon? *Ans.* 168 sq. in.

From Prop. XXII: The base q p of the triangle o p q = 8 in. The apothem o s = 7 in. and is the altitude of the triangle o p q. Then, 8 in. $\times \frac{7 \text{ in.}}{2}$, or 8 in. × 3.5 in. = 28 sq. in., which is the area of the triangle o p q. As all of the six triangles are equal, the area of the hexagon is 28 sq. in. × 6 = 168 sq. in.

Prob. 22.—If the sides of the scalene triangle e f g, Fig. 20, are as follows: e f = 19 in., g f = 10 in., and e g = 13 in., what is the area of the triangle? *Ans.* 60.79474 sq. in.

From Note I: One-half the sum of all the sides is 21 in. The differences are as follows: 22—10 = 11, 21—13 = 8, 21—19 = 2. The product of the three remainders and half the sum of all the sides is as follows: 11 × 8 × 2 × 21 = 3,696. The area of the triangle is $\sqrt[2]{3,696}$, or 60.79474 sq. in.

Prob. 23.—Let us suppose that we are required to find the area of a sheet of steel similar in form to the trapezium f g h i, Fig. 22. The trapezium is divided into two triangles by drawing the diagonal f h. The perpendicular f j is let fall from the vertex f to the base i h in the triangle f h i. The perpendicular g k is let fall from the vertex g to the base f h in the triangle g h f. We find, by aid of a scale, the following dimensions: i h = 28 in., f j = 10 in., f h = 26 in., g k = 8 in. What is the area of the sheet of steel? *Ans.* 244 sq. in.

From Note II: First find the area of the triangle f h i, as follows: 28 in. (the base) × 5 in. (½ the altitude) = 140 sq. in. Next find the area of the triangle g h f, as follows: 26 in. (the base) × 4 in. (½ the altitude) = 104 sq. in. The area of the sheet of steel is the sum of the areas of the two triangles, or 140 sq. in. + 104 sq. in. = 244 sq. in.

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FRED LOWMAN, at the time the incidents narrated in this sketch befell him, had been for some years running an engine on the D. & W., in the State of Illinois. Fred had a regular freight run, and, in railroad parlance, was a "good man" with an engine, in every way up to date in his calling, well liked by his associates and by the company's officials, yet he had one habit that was dragging him surely down to ruin.

Twice he had been summoned before Mr. Cole, the master mechanic, and after a severe reprimand for his drinking, and a warning to avoid the use of liquor in the future, had been sent back to his run. Each time he had done better for awhile, but his good resolves were not strong enough to sustain him, and each time he had gone back into his old way of doing. Now he was summoned for a third interview with Mr. Cole, and he felt that the loss of his position, under the circumstances, was almost certain. He had been on a drunken spree for a week, and when he had reported to the night foreman to go out on his run in the morning, hoping by so doing to avoid coming in contact with the "Old Man," he was informed that Mr. Cole wished to see him in his office when he reported for work, and that that gentleman was now in his den.

Fred's heart sank. He felt his guilt and knew that he deserved punishment, but he had always put the thought of his wrong-doing coming home to him as far as possible from his mind, but now he could not conceal from himself the fact that he had reached the end of his rope. He thought of his wife and children, and the thought of them being compelled to share in his disgrace and deprivation cut him to the heart. However, he might as well have it over, and mustering all the courage he could summon, he walked into Mr. Cole's office. Mr. Cole was busy with some papers, which he laid aside on Fred's entrance.

"Good evening, Mr. Lowman; have a chair, please," said Mr. Cole.

The reception was not auspicious; ordinarily Mr. Cole would have addressed him as Fred, and been much less formal in his manner.

"Good evening, Mr. Cole," replied Fred, as he took a chair. "I believe you wished to see me about something."

"I am sorry to say that I do," said Mr. Cole. "The fact of the matter is that more of your doings have come to my ears, in reality some of them under my personal observation. Two days ago I saw you reeling arm in arm down the main street with Zeb Pike, a man that any self-respecting man would shun as he would a viper. Your conduct is not only ruining yourself, but it has a tendency to demoralize other of our employes if you are allowed to go on your career unchecked. For that reason I have called you here. Is there any possible excuse

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you can offer for conduct such as yours of late?" and Mr. Cole paused to give Fred an opportunity to exonerate himself if possible.

"How can I excuse myself? It is my own weakness. Twice you have warned, nay, talked to me as a father might to a son. My wife has pleaded with me, and I have formed resolves that I would never touch or taste liquor again, but you see how miserably I have failed to keep them. I have meant to do what was right. I have fought it off until a mad impulse that seemed to dim everything else in my mental vision came on me, and then I drank, and soon I no longer cared for anything. An utter disregard for my deeds and their consequences comes over me and I drink until stupefied, and then when once more I am myself I am too ashamed to even gaze at my own reflection in a glass, much less look respectable people in the face," replied Frad.

"I have been lenient with you, not so much on your own account, although I am glad to help a man build up, but on your wife's account, whom I personally know and esteem as a lady of worth and merit, and, I must add, since you force me to say it, who is married, unfortunately, to a man who admits that he hasn't the will power to control the mad impulses of his appetite for drink, but allows those impulses to push him down in disgrace and drag his family along," and Mr. Cole looked at him severely over his glasses.

For any other offense Fred would have resented the words of the "Old Man," but he felt there was a certain amount of truth in them, and to be discharged for drunkenness meant simply the loss of his occupation, for no other road would care to employ him.

"For a man who has never been the slave of a habit I suppose it is impossible for him to realize how utterly one forgets everything else when this desire comes on him. I know I was foolish to acquire a fondness for liquor, but it was done in my youth, when, with a lot of foolish boys, we thought we had to drink to convince the world we were men," replied Lowman.

"There is no question that men often form habits in youth during thoughtless moments that are a curse all through their lives, because they have not the will power to back away from the associates and associations which keep them under the spell of such habits. I, too, drank in my youth, but I saw where it was leading me, and I broke loose from the associates that were helping me on the downward path, and to do it I left my native town. If you stayed at home, or at least away from saloons and their frequenters, you could do the same, but you can't sit around with the smell of liquor under your nose, and companions at your elbow urging you on, and not drink. If you used half the effort to avoid such things as you do to get out of the trouble they plunge you into, you would not be in the position you are now occupying," said Mr. Cole.

Fred was silent. He felt the full force of the master mechanic's words. There was nothing he could say to refute them. He had firmly meant to never drink again when he had met Zeb Pike and yielded to his solicitations, and now his month's pay was gone and doubtless his position, all because he had not will force enough to send Pike about his business, and he groaned inwardly.

"I have overlooked your shortcomings as long as I feel that I can," continued Mr. Cole. "Others are commenting on the fact that you still hold your position after conducting yourself as notoriously as you have done. These comments reach my ears, and what have I to offer? Our rules are made to apply to all equally. I should be above discriminating, which I have not been in your case, but I can forbear no longer. You may report to the timekeeper tomorrow and receive what is due you. Should you secure a place somewhere else I will do all I honestly can for you, and under new conditions if you profit by the lesson you have received here, you can make a sober man of yourself. Good evening, Mr. Lowman," and Fred went out with the sentence of dismissal for drunkenness ringing in his ears, his face bent toward the ground, and his attitude one of dejection. He avoided the roundhouse; he had no desire to meet any of his acquaintances and he walked down the track that lead east out of the village.

Fred did not wish to go home now. He felt that he had not the courage for that. His wife had warned him, had pleaded with him to let drink alone, and he had not respected her wishes, and now what she feared and dreaded had come to pass and he was out of a situation. He knew that now the worst had happened she would not upbraid him, but would accept the conditions brought on by his misdoings without complaint, and that thought made him the more miserable. He wanted to be alone. The companions, who yesterday he thought he could not do without, were now hated memories to him. How he

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loathed them and despised his own weakness. His spirits, made low by a week's debauch, were sunk to the lowest ebb by the loss of his position. The whole world looked miserable and uninviting to him as he walked along in the darkness. He crossed a bridge over a small river and paused for a moment, half tempted to cast himself in the water below, but no! He resolved that whatever else he might be he was no coward, and he would fight it out, and he would show the world yet that he was a man.

The cool air and the walk were having their effect. His brain was growing clearer and his mind more composed, and he was about to turn back, when he dimly saw a large dark object on the track close ahead of him with several figures grouped about it in absolute silence. The whole thing looked queer to him, and, forgetting his own troubles momentarily in a desire to know more of the object ahead of him, he pushed up close to it, when a voice that he recognized instantly hailed him:

"Who are you, and what do you want here at this time of night?' it asked.

"Hello! Zeb Pike. I might ask the same of you, but I won't," said Fred.

Fred did not need to. The dark object on the track had outlined itself plainly to his vision now as a pile of ties, and the men about it as a band of train robbers. He was in a tight place, but he made up his mind to save himself and the threatened train if possible.

"I don't know as it would do you any good if you did ask, but it is necessary for us to know how you happen to be here at this hour of the night," replied Zeb, suspiciously.

Fred could see enough in the half darkness to know that they were all watching him closely, but he did not flinch. He remembered that the Chicago express would soon be due along there and he meant to save it.

"Easy enough," explained Fred. "I went down to the roundhouse to report for work tonight and the 'Old Man' fired me bodily for being drunk, and when I left his office I didn't care what became of me. I couldn't go home. There was no one I cared to meet up town. I started on an aimless walk down the track. Back here I came near throwing myself in the river; why I did not do so I do not know, but I came on and here I am. Now, what are you up to, although I think I can guess?"

"And what do you guess," asked Zeb, and he looked at Fred keenly through the darkness.

"Train robbing," said Fred.

"You've guessed it, and so you just stumbled on to us?" said Zeb, inquiringly.

"That's all. I don't think I owe the railroad company anything, and don't you think if I had known you were here I should have went elsewhere?" asked Fred.

"No doubt. Now that you are here we have got to have an understanding. If any other man but you had happened along here a bullet would have settled it, but I believe under the circumstances you will play square, at least we will give you a chance to save your life by becoming one of us," replied Zeb.

'A desperate man is ready for anything that promises gain," vowed Fred.

"Gain is what we are after. The railroad has plenty of money and we are going to help them care for a part of it by ditching the express and robbing it," said Zeb.

"Don't you think that to stop the train and rob it would be better? Things might pile up so that you couldn't get at the express car," argued Fred.

"That's what Jack said, but I was afraid they wouldn't stop, and we want to be sure," said Zeb.

"No fear of an engineer running by a stop sign, especially after night, if he can possibly stop. Have you got a lantern," asked Fred.

"Yes, Jack's got a red one."

"Let me have it and I will go just a little farther down the track and signal him so he will stop right in the cut there. You can have the boys on each side of the cut and go after them as soon as they stop," said Fred.

"All right, but don't try any horse play. We have men here that can shoot after dark," warned Zeb.

"No fear of me. I'll do the right thing," replied Fred, and while the words sounded all right to the robbers they had a double meaning.

"They can't get by the ties, anyway," ventured Jack, "and I have argued all along that the lantern was the proper thing to use."

The lantern was produced; it was a typical hay-burner affair, but it gave a good light and that was the main thing desired by Fred. He lighted the lantern and gave it several violent swings across the track to see if it would go out, but it did not, and Fred was fully satisfied it would work all right. He knew that John Broughton would never pass a flagman if in his power to stop, and he relied upon this fact to assist him in outwitting the robbers.

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Zeb asked him if he had a gun, and, finding he had not, gave him one. Fred dropped it in his pocket and moved down the track, followed by the robbers, who lined themselves on either side of the little cut, beyond which Fred advanced as far as he thought he could without exciting the suspicion of the gang behind him. He knew that he had half a mile of straight track ahead of him, ample enough room for the stopping of a passenger train, but he wanted to get it stopped far enough from the robbers to warn the engineer and give him time to back the train out of the way before the outlaws could come up.

There was some argument among the outlaws as to whether they could trust Fred or not, but Zeb favored him and so did the one called Jack, because he had adopted his idea as the proper one to stop the train, and then there was the pile of ties; the train could not pass that, and all they thought about was stopping it.

Fred glanced at his watch by the lantern's light. In six minutes the train would be due at the station. He laid his ear close to the rail and could hear the far-off hum of the wheels, carried to him by the steel conductor. The time for action was close at hand and he nerved himself for it. The headlight shot into view and Fred waved his lamp back and forth as far as he could swing it from the moment he saw the light, yet it seemed an age to him before the answering notes of the whistle told him that his signal was observed. He still swung the lantern with the engine close to him, and its brightly burning headlight blinding his eyeballs. Then all at once he realized that the train was stopping, and he swung his lantern violently in a circle for Burroughs to back up, and, running toward the engine steps, he shouted a warning to the engineer that the cut was full of robbers.

Burroughs did not need to wait for any further explanation, for the robbers heard Fred's warning cry and half a dozen pistols were fired at him as he ran, but the distance and darkness favored him and he escaped being hit, and in another moment he was safe behind the boiler head, and the big machine was slowly forcing the heavy train in motion back the way it had come. The outlaws were running toward the train, firing as they came, and the crash of the glass in his front windown warned Burroughs that there were safer places than his seat box, and he joined the fireman down behind the boiler head.

The efforts of Pike and his gang were fruitless. Hampered in their running by the darkness and the uneven ground, the engine gathered speed enough to carry the train out of their reach, and the only thing left for the outlaws to do was to make themselves scarce in that part of the country, and they proceeded to do it with many a vow of vengeance on Fred's head.

A couple of miles back the train was stopped and the train crew and passengers, who had formed a good idea of what was going on from the shooting, were fully informed of what had transpired, and it was decided to form a guard from the armed men on the train and got back, and if the robbers were there they would fight them. Preparations were made accordingly and the train returned, but the outlaws had vanished. The ties were thrown one side and the train pulled on into the station, where the news of the attempted hold-up was sent over the land. The robbers were never caught, despite the fact that some of them were known, and great effort was made to apprehend them.

The next day Fred Lowman was again summoned to Mr. Cole's office and he went there with a lighter heart than he had carried on the previous day. Mr. Cole informed him that he was fully reinstated, and advised him to profit by his latest experience. It is needless to say that Fred did so, and no more sober or steady man could be found on the D. & W. from that day forward than Fred Lowman.

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An Idyl of the Strike*

FROM the piazza of the hotel the soft ripple of the river, lapsing away across the road, was just audible. Beyond were green meadows and low hills, and a great mound of culm, over a mile distant, with a red glow in the midst of it; it had been burning for more than a year. A quiet and pretty scene; but the strike was in the air.

"There'll be no arbitration," said young Frank Gibbs. "We wouldn't mind correcting abuses, if there are any; but we won't let a lot of agitators run our business for us. I take a serious view of this thing; I believe God doesn't mean a great industry like coal mining to fall into the hands of the ignorant rabble. We have the brains and the money—and the mines; and we feel our responsibility—"

"To God and man," put in Norton, the newspaper man, lean and sardonic. "Yes, you operators are a holy bunch of Christians, and the labor unions are Apollyon, whom you must down for the sake of salvation in general. You make me sick!"

"You can sneer; we have the best interests of the men at heart," returned Gibbs, putting on dignity.

"Yes; and of the pretty girls in the silk-mills, too," added Norton, with a malignant chuckle. "Oh, I know your gang; and I know you, in particular, Master Frankie!"

"I'm always willing to talk with gentlemen; but I don't care to listen to billingsgate," said Gibbs, pushing back his chair and getting up. "Drop in to dinner this evening, if you have time, Elliott," he went on, to the clergyman who was present. "Glad to have met you, sir," he added to me; and walked off, still with dignity.

"I think you are very unjust," said Elliott, to the journalist. "Frank Gibbs and his father are good men, church members; I've known them for years. Frank is really thoughtful and philanthropic, for a man of his years. He has personally interested himself to better the lot of numbers of his employes and their families, to my knowledge. I really think your innuendo was unpardonable, Norton."

"It annoys Frankie more than it does you," returned Norton, still chuckling. "And he won't pardon it, Christian or not, never fear! You pulpit fellows mean well; but you don't get your nose down so close to the real thing as we newspaper devils. You ask Frankie, sometime, how Kittie is getting on, and watch his expression! There's slavery in this glorious country, worse than before the war. But there'll be a strike, because some of us aren't quite ready to go on licking the boots that kick us. Shall you write it up?" he asked, turning to me.

"I don't know, yet; I rather hope not," I said.

"If you do, I can put you on to some good stuff," rejoined he; and then Elliott took his leave, and left Norton and me together. We talked strike till the sun went down.

A few weeks later I was on a train bound for the heart of the strike region. From the car window I saw shaggy hills hewn asunder to make tortuous valleys; the roots of the puny vegetation grappled with the black bones of the forests of a thousand years ago. Coal mines were everywhere, blackening the green sides of the range; hillocks of slaty refuse, from thirty to a hundred feet in height, marred the landscape with their sullen, metallic glitter. Their sable drift spread out in glistening levels naked and barren as death, with blasted tree-stumps sticking up out of them. Down the gullies ran streams red as massacre or black as the unpardonable sin. Grotesque coal breakers staggered against the sky, gable above gable hung in air, like ruins of Giant Despair's Castle. Here the ground was rent apart to expose a surface vein; there, there was a cave-in over an abandoned mine. The soil was a bilious yellow where it was not blackened with coal dust; ever and anon we passed clusters of rusty hovels, shabby, naked, hideous, the homes of human beings. There were company stores, large, heavy, dilapidated; with dusty windows, gloomy interiors,

* Julian Hawthorne, in Wilshire's Magazine.

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where clerks bent over ledgers, and gray-haired, iron-visaged managers sat spider-like in their offices. Around the miserable settlements curs sneaked and cantered; goats browsed on rubbish, geese and ducks waddled in filthy mud-puddles; the yards were fenced with tree-stumps, bits of rusty iron sheathing, barrel-staves and mounded refuse—cast-off boots, dented tin cans, broken bottles; in the yards were ovens of clay, like white-ant heaps, with a broken barrel for chimney. Somber men stood about in groups; barefooted and bare-armed women leaned in doorways; children slunk and crawled about among them. This was Minerdom and the strike had been on for a month and more.

Norton met me at the station. "Things are b'iling!" he said, with his saturnine grin. "Here's a trap for you; the fellow will drive you over to old Harvey's; he's in the way of being a scab. You'll get local color and views there, and more fun, unless I'm mistaken, later on. I'll see you when you get back. So long!"

Old Harvey lived on a hillock composed of compacted filth of generations, in a hovel of two stories, containing two families, renting at four dollars a month, occupant liable for repairs. The unpainted clap-boards were warped with age and weather, and you could peel off strips with your fingers. The planks gaped apart, and the rotten roof was like a sieve. In front was a porch, with dingy white palings, and an elderly man sitting on it; behind was a tiny shed attached to the house, with a stove in it for cooking, when there was anything to cook. As I drove up, a dumpy, waddling old woman emerged from the shed, wiping her arms on her apron. She was Mrs. Harvey, and the man was her husband, a miner for thirty years.

I told them what I "represented," and we entered into conversation.

Yes, they was Johnnie Bulls. Come over 'ere to better themselves thirty years ago; Tom, 'e used to be a butcher. 'Ad 'ad seven children; six livin'; one boy, 'e was killed in the mine, and the h'apple of 'is mother's h'eye, 'e was. 'Ne boss's fault, that was; the law says three feet between the track and the timbers, and it was only six inches, and Jackie was ketched by the truck and killed. The h'operators didn't make no compensation: the witnesses we 'ad, they fired 'em; and h'all we got for h'our boy's life was just that! (a snap of the finger). What was the most Tom h'ever earned in a month? 'Ow much was it, now! Well, one month 'e got fifty dollars—yes, fifty in one month; but that was years ago; some months now 'e didn't get more nor eight dollars—h'eight to fifteen. No steady work—that was the trouble; an 'undred and fifty days in the year. on the h'average. Too many Polanders about these times. I you tries for a job h'elsewhere, why, you're fired, that's all: and you walks to the mine every day for a fortnight, may be, and hangs around all day, and they tells you, nothin' today, they tells you. So Tom 'e told the boss t'other day, h'if I can't get money to buy coal I'll 'ave to thieve it, 'e says. You will? says the boss. H'i must! Tom, 'e says. Well, come around, says the boss; but 'ow can Tom go, with the union men a-waitin' to club 'im for a scab? So there we be; and if it wasn't for Katie, we'd a starved.

"Then you don't want the strike?" I asked Tom.

Strike?—No, 'e didn't want no strike! Work was what 'e wanted — regular work; h'if 'e went h'out on strike, it would be because the union they forced him to it. Give 'im work, and pay 'im what you will, and 'e'd be thankful! But if 'e went scabbin' it, 'e'd be shot or clubbed, and if 'e didn't 'e'd starve. That was what this free and independent American adopted citizen had come to.

"Six other children living besides Katie, eh? Any of them old enough to work?"

Yes; there was Dick—'e's twelve; 'e makes fifty cents a day when there's work; and there's another, h'eighteen 'e is—'e'll make sixty-six cents. It all 'elps. But Katie, she gets three fifty a week at the mill; h'up at four thirty h'every mornin' and walks over; and then Mr. Gibbs, 'e gives her special jobs now and again; right kind and good, Mr. Frank, 'e is; ah! if they was all like 'im! Would like to show me Katie; as pretty a gal, and as good a gal, as there was in the mill; she was a-going to marry young John Kearney next year, if the strike didn't stop it. Yes, one sees plenty of children 'ere-abouts; well, there's got to be; they don't h'eat much, and they does work—beginnin' seven, times, hif the inspectors will stand for it, and they mostly will. It ain't the law but there ain't no law, not for h'operators; plenty of it for miners—yes, there be!

Frank Gibbs, and Katie! What association of those two names had got into my head? I couldn't trace it. Well, there were many Katies in Minerdom. I bade good-bye to Mr. and Mrs. Harvey, after a glance into their dining-room, living-room, every-purpose-room, twelve feet

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square, six feet high, with its three chromos, its rotting floor, its leaking walls, its home-done whitewashing and plastering, and its desperate struggle to be clean. I went back to the village and George Norton,

This is not an artistic story. But it is a broken arc in a vast circle—a drama—now being acted out in this country, to what *denouement* we know not; but doubtless it will be artistic enough, when we know it all.

"So you found him a decent sort of chap, although a scab?" said Norton that evening, as we climbed a narrow pair of stairs to the "committee room." Norton was smoking a Pittsburg stogie, as dry and lean as himself.

"The most peaceable man in the coalfields," I answered. "If they were all like him, the operators would be in clover——"

"Until all the Tom Harveys had starved to death," interrupted he, gibingly. "Fine residence, that of his, isn't it? Owner, Frank Gibbs; estimated capital five millions. And now I'll show you the other phase!"

He opened a door at the head of the stairs. The room was fifteen feet square, with a bed in it, on which two men sat, a deal table, two chairs, a smoky lamp, and a slop jar used as a spittoon. One of the men was smoking a pipe; he was bearded, with steady, shining eyes and rough garments; the other was taller, muscular, red-haired; he wore a black vest over a red flannel shirt; his blue eyes had a fierce look, his features were bold and sharply moulded. He sat on the bed, with a knee between his clasped hands.

"Carl Otto, I want you to know this man here whom I spoke of this morning—my friend, and all right." The red-haired one grunted, and held out an enormous hand. "Petowski," continued Norton, "my friend." The dark-bearded one rose and bowed. "These men are strike leaders," went on Norton to me; "and tonight they are going to pay their respects, with a few hundred other gentlemen, to Mr. Frankie Gibbs' stockade. Frankie has been employing scabs—is that right?"

Carl Otto grunted, and nursed his knee. Petowski said, politely, to me, "You come along?"

"As a looker-on; not as a combatant," I said.

"As catcher, not pitcher, eh?" chuckled Norton. "Well, you'll see most of the game. I shall carry my gun, just for sociability. How may guns will there be in the crowd, all told?" he asked Petowski.

Before the Polander could reply, there was a heavy knock at the door, immediately followed by the entrance of a broad-shouldered youth, whose handsome face was flushed and distorted by some kind of violent emotion. He seemed to look at no one; he had some one by the hand, who was trying to draw back.

"What's wrong with you, John Kearney?" demanded Norton, sternly. "You're not one of us; you have no business here."

"I have business at Gibbs' stockade tonight," returned the other, in a husky voice; "and here's why." With that, exerting his strength, he dragged into sight his companion, a very pretty girl, neatly dressed, her face white with fear; her dark eyes went from face to face of those in the room, half appealing, half defiant.

"Kate Harvey!" muttered Norton, amazed.

The red-haired Berserk rose. He strode to the door, locked it, and pocketed the key. Then he turned to Kearney. His accent was foreign, but his words good enough English.

"You are a peace man; we are for war. You come here—bring this woman. You are a spy, perhaps—or not; we don't know! We bind you; we gag you; you stay here till all is over. The woman, she——"

"You hear me, first, Carl Otto," Kearney broke in. "You're not for war so much as I am. If the stockade is blown up tonight, and if Frank Gibbs is shot, I'm the man will do it. Give me a gun, and put me in front; you'll see! And here's my reason," he went on, turning to the girl. "We've kept company for a year; we was to be married next month. The superintendent up to the mills turned her off today. Can you see what for?"

She stood in the light of the smoky lamp, drooping, faltering. Her shrinking figure told the story. We all saw it.

"The superintendent thought it was my doing, maybe," added Kearney, in his husky voice of passion. "Well, ask her if it was!—ask Frank Gibbs!"

"You are a blackguard, John Kearney, anyway," growled Norton, fiercely.

Kearney paid no attention, "She was on her way to the stockade to warn them, and to be with him, when I met her. We had it out, and I fetched her here. I didn't kill her; I——" his voice failed him for a moment, but he set his teeth and went on. "I want to kill him. Give me a gun, and keep me in front—that's all."

There was a silence, broken by the soft voice of Petowski. "Ze young ladee, vould zhe like to zay zomet'ngs?"

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She stood silent, shaken with convulsive nervous tremors, her face down, her fingers working together. In a moment Norton said, in a voice so kind and gentle that I hardly recognized it, "Speak or not, as you please, my girl. You shall be protected here."

There was another pause, with such stillness that the different breathing of every person in the little room was perceptible. After several efforts, a broken whisper came from the girl, with pauses between.

"I cared for John. But Mr. Frank was nice to me, and I liked him, too. But I wouldn't have * * * I wouldn't only he promised to help father and mother; and I thought * * * "

She crouched down on the floor, half kneeling, half sitting, her face in her hands. Kearney stepped to the window, and stood staring out into the rainy blackness. Norton conferred apart for a few minutes with Otto and Petowski, in undertones.

Then the red-haired one spoke. "Miss Harvey stays here till we come back; she excuse me, I lock the door. You come with me—where I can put my hand on you!"—to John Kearney. "The gun for you when the time come. So, now we go."

After an hour of such work as I hope not to see again, came this scene:

Four hundred men faced the stockade, at a distance of forty yards. Shots had been fired on both sides, but none had been hit yet. I was near Carl Otto; and I heard him say to John Kearney, "Now! you go!"

The young fellow held in his hand an oblong object, about ten inches long by four wide. He started forward at once at a run, straight for the stockade. Otto covered him with his revolver while he ran. A shot from the palings struck him in the ankle; he fell, but dragged himself forward. Shots fired from the mob served to protect him; he reached the foot of the stockade, and planted the oblong object there. "Stand back, all!—stand back!" called out the leader, waving his arm. But Kearney lay there, and if the explosion took place it was certain death to him.

Then I saw the lank figure of George Norton emerge from the retreating line of the strikers, and stride leisurely towards the fallen man. Shot after shot was fired at him from the stockade, with no effect. He reached Kearney, got him across his shoulder, and set out to return. It was a heavy load. Twice he stopped to rest; he seemed invulnerable. Just as he reached our line, a bullet passed through the crown of his derby hat. The wounded man was taken from him and passed to the rear. George took off his hat, looked at the hole, remarked, "There goes three dollars!" and retired, panting, into the ranks.

The next thing was to set off the explosive (whatever it was) by a shot from a rifle. But the defenders, aware of their peril, had rigged up a reflector lamp, which, glaring in the faces of the shooters, marred their aim, and at the same time exposed them to danger. Petowski, a good marksman, sent a bullet through the reflector, but the dazzling glare was maintained. "It must be zat some ones like Sheorge Norton walk up to heem and explode heem," said Petowski, thoughtfully, slipping in another cartridge.

But volunteers for the certainty of being blown to pieces are not common.

All at once, however, there was a confusion in the ragged ranks, and a voice calling out with the strong English intonations to which I had listened only a few hours before—

"H'I'm the man for the job!—h'I'm the man! Damn the h'operators, and Frank Gibbs! Stand back, boys, and keep yer h'eyes on Tom 'Arvey!"

The gray-haired little figure was now visible, struggling with two men who were holding him back. He broke from them; he had a revolver in his hand. Then sounded a shrill, woman's scream, and a girl, his own daughter, leaped forward and threw her arms round him. He tried to throw her off. The light from the reflector fell full upon them and sparkled on the rain that slanted down from the black sky.

Above the stockade, to the left of the reflector, I saw the head and shoulders of a man rise up, and the shine of a rifle-barrel. He aimed hurriedly and fired. Tom Harvey's knees gave way under him, and he fell; the girl fell with him. I rushed forward with some one and pulled them back. It was Norton who had helped me. The old man and the girl were both dead by the same bullet.

"Did you recognize the man who fired that shot?" asked George.

"No," said I.

"Well, no matter; we could never hang him for it; the judge and jury are in his pocket. But it was our Christian philanthropist and church-member, Frankie Gibbs, all the same. He has made a clean job of it!"

A cry arose, "Here come the troops!" and the mob melted away.

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Our Congressional Interests

The Safety Appliance Bill.

IN THE January MAGAZINE the "Lodge-Bates Employers' Liability Bill," officially known as S. 6451 and H. R. 15990, was published in full, and all readers were urged to use their influence with their respective Senators and Representatives to secure the adoption of this bill.

The "Safety Appliance Bill," S. 3560, was passed by the Senate at the last term and was referred to the House Committee on Interstate and Foreign Commerce on June 28, 1902. This bill was reported with amendments, and referred to the House Calendar, and ordered to be printed on December 19, 1902. The following is the text:

An act to amend an act entitled "An act to promote the safety of employes and travelers upon railroads by compelling common carriers engaged in interstate commerce to equip their cars with automatic couplers and continuous brakes and their locomotives with driving-wheel brakes, and for other purposes," approved March second, eighteen hundred and ninety-three, and amended April first, eighteen hundred and ninety-six.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the provisions and requirements of the act entitled "An act to promote the safety of employes and travelers upon railroads by compelling common carriers engaged in interstate commerce to equip their cars with automatic couplers and continuous brakes and their locomotives with driving-wheel brakes, and for other purposes," approved March second, eighteen hundred and ninety-three, and amended April first, eighteen hundred and ninety-six, shall be held to apply to common carriers by railroads in the Territories and the District of Columbia; and the provisions and requirements hereof and of said acts relating to automatic couplers, grab irons, and the height of drawbars shall be held to apply to all locomotives, tenders, cars and similar vehicles used on any railroad engaged in interstate commerce, and in the Territories and the District of Columbia, and to all other locomotives, tenders, cars, and similar vehicles used in connection therewith, excepting those trains, cars, and locomotives exempted by the provisions of section six of said act of March second, eighteen hundred and ninety-three, as amended by the act of April first, eighteen hundred and ninety-six; or which are used upon street railways.

Sec. 2. That whenever, as provided in said act, any train is operated with power or train brakes, not less than fifty per centum of the cars in such train shall have their brakes used and operated by the engineer of the locomotive drawing such train; and all power-braked cars in such train which are associated together with said fifty per centum shall have their brakes so used and operated; and, to more fully carry into effect the objects of said act, the Interstate Commerce Commission may, from time to time, after full hearing, increase the minimum percentage of cars in any train required to be operated with power or train brakes which must have their brakes used and operated as aforesaid: and failure to comply with any such requirement of the said Interstate Commerce Commission shall be subject to the like penalty as failure to comply with any requirement of this section.

Sec. 3. That the provisions of section one of this act shall not take effect until July first, nineteen hundred and three, and the provisions of section two of this act shall not take effect until ninety days after the passage of this act. Nothing in this act shall be held or construed to relieve any common carrier, the

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Interstate Commerce Commission, or any United States district attorney from any of the provisions, powers, duties, liabilities, or requirements of said act of March second, eighteen hundred and ninety-three, as amended by the act of April first, eighteen hundred and ninety-six; and all of the provisions, powers, duties, requirements and liabilities of said act of March second, eighteen hundred and ninety-three, as amended by the act of April first, eighteen hundred and ninety-six, shall, except as specifically amended by this act, apply to this act.

This bill, enacted into law, will be of great benefit to railway employes from the fact that many lives will be saved. The Speaker of the House and the House Committee on Rules have it in their power to defeat the measure, as they dictate just what bills may come before the House for action. The majority of the Committee on Rules and the Speaker are presumed to voice the sentiment of the dominant party. If the bill is prevented from coming before the House it will be because the "machine" believes that it should not pass. If the railroad employes of the entire country can convince these gentlemen that this bill *must* be permitted to come before the House for action it will be considered. It has been claimed, in boasting manner, that the "railroad vote" has been "making administrations." If this is true it would seem that railroad voters are deserving of some consideration.

Each and every lodge of the Brotherhood of Locomotive Firemen should immediately adopt resolutions favoring the immediate passage of this bill; they should send copies of such resolutions to their respective Congressmen, and appeal to each Congressman to use his influence with the Speaker of the House and with the members of the Committee on Rules to get this bill before the House for final action and passage.

The "Anti-Injunction Bill."

As a result of a persistent bombardment of members of the House with resolutions from labor unions throughout the country the "Grosvenor Anti-Injunction Bill" was passed by the House at the first term of this Congress. The bill should have been passed by the Senate, but by a lot of "dodging" Senators shirked the responsibility for the failure to pass the bill. The "Steering Committee" of the Senate is supposed to dictate just what bills the dominant party desire to come before the Senate for action. When accused, the members of this committee endeavored to place the blame upon the Senate Committee on the Judiciary, saying that the latter should call for a consideration of the bill before the "Steering Committee" could permit it to come before the Senate for action. On the other hand, the Committee on the Judiciary placed the blame on the "Steering Committee."

The chairman of the Committee on the Judiciary has now formally asked for the co-operation of the "Steering Committee" in getting consideration for this bill. It is "up to" the "Steering Committee," or at least to the members of the dominant party, who constitute a majority of that committee. If the bill is now denied the right to be considered by the Senate those gentlemen will be responsible for its defeat.

The members of the "Steering Committee" are as follows: W. B. Allison, of Iowa; N. W. Aldrich, of Rhode Island; Eugene Hale, of Maine; S. M. Cullom, of Illinois; H. C. Lodge, of Massachusetts; J. C. Spooner, of Wisconsin; G. C. Perkins, of California; S. B. Elkins, of West Virginia; C. D. Clark, of Wyoming; A. J. Beveridge, of Indiana, and M. A. Hanna, of Ohio.

Now that you know who are responsible for the passage or defeat of the Anti-Injunction Bill do not let them rest until every lodge of the Brotherhood of Locomotive Firemen has "prayed" to them that they will permit the will of the people to be enacted into law. Send them resolutions indorsing the "Grosvenor Anti-Injunction Bill." Urge upon them that the "railroad vote" is watching their course in this matter.

Remember that this bill has been passed by the House and the Committee on the Judiciary of the Senate desires the bill considered and that the only thing standing in the way of its adoption by the Senate is the "Steering Committee."

Are We Being Buncoed?

From the foregoing it will be seen that "to show its friendship for the laboring man" the Senate has passed the "Safety Appliance Bill," but it is "held up" by the House, and the House, presumably for the same reason, has passed the "Anti-Injunction Bill," only to be held up by the Senate. Thus it appears that the "railroad vote" is to be "buncoed" by the people that this vote elects. Will it always be thus?

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Industrial Progress in Canada.

Canada has made giant strides of late years. This fact has been apparent to the most casual observer; while to the student taking an interest in the economic development of a people, there is abundant evidence of material progress which augurs well for the immediate future of the country. Comparatively young business men in Canada have a recollection of geography lessons at school in which it was set forth that the two chief items of export in Canadian trade were fish and lumber. It is interesting now to note that in the list of exports for the first quarter of the present fiscal year fish stood sixth and lumber seventh; animals and their produce and the products of the mines took first and second places respectively, replacing fish and lumber, which were formerly the only two really important staple exports of the Dominion.

Although there has been a remarkable expansion in nearly all departments of Canadian trade in the past year or two, the greatest development has been in connection with the iron and steel industries and in agriculture. When the end of the current half year is reached, it will be found that the results of the operations in these branches of industry have caused very substantial additions to the domestic trade of the country. The manufacture of steel and iron on an extensive scale in Canada does not date back many months. The development of this industry has been rapid during the past year. Nature bountifully provided the Dominion with the material resources necessary to the successful prosecution of iron and steel manufacture, and to a considerable extent Canadians have provided the necessary capital for the operations along this line. But the working out of the experiment was left for the enterprise and skill of two Americans: Mr. H. M. Whitney assumed the task in Nova Scotia of proving that iron and steel could be profitably produced there on a large scale; while Mr. F. H. Clergue, referred to as the Jason of Algoma who sought the Golden Fleece in the rich mineral fields of New Ontario, undertook, at the Canadian Sault, to show what could be done in the same way in the West. To these two American gentlemen, who inaugurated large steel and iron industries in Eastern and Western Canada, the people of the Dominion owe a debt of gratitude. The results they have achieved in the past year make it clear that the experimental stages have been passed, and indicate that Canada in the future will take an important place among the iron and steel-producing countries.

The production of coal in Nova Scotia has shown a steady development this year both in connection with the smelting industry and for export; while the coal mines of British Columbia, the Crow's Nest mines in the Rocky Mountains, and the mines on Vancouver Island have shown usual activity.

In agriculture Canadians have been far from idle. There has been a large increase this year in the cereal production. In Manitoba and the Northwest, which are inclined to claim to be "the future granary of the Empire," the production of all grains this year exceeded for the first time the 100,000,000-bushels mark. Of this 60,000,000 bushels were spring wheat of a higher average grade than the country ever yielded before.

The large influx of settlers to the West during the last ten months has, with the increased production of grain this year, greatly stimulated the demands of the West for staple goods from Eastern Canadian centers of manufacture. Supply has in many cases failed to keep pace with the increased demand, and factories and mills are now being taxed to their fullest capacity in meeting the requirements of the mercantile trade. The settlers who went into the West during the past ten months did not break ground for crops this year, and they, with the many others now going into the country, will cause a still further increase in the grain production next year. It is believed that Western Canada, with favorable conditions, will in 1903 produce 100,000,000 bushels of spring wheat. There were in the West this year less than 3,000,000 acres of land under wheat. There are in that part of the country 40,000,000 to 50,000,000 acres of land as good for the production of wheat as those already under cultivation. This gives some idea of the possibilities offered by the West for the growing of wheat.

The future of the West is full of promise. Leading business houses in Canada are establishing branches in anticipation of the large business that will accrue there a year or two hence; manufacturers are raising capital to invest in industrial enterprises, and the chartered banks have been steadily increasing their capital to provide for the extension of business in that part of the Dominion by the opening of branches. Two years ago the total

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paid-up capital of the Canadian chartered banks was $66,264,967; now it is $70,270,408, and arrangements are being made now for a still further expansion in the banking capital of the country.

In Ontario there has also been a marked expansion in industrial operations this year. The increase in agricultural operations of this province in the present crop year has been large. The total crops of wheat, barley, rye, buckwheat, oats, peas and corn, amount to 160,000,000 bushels, which is the largest production of grain in Ontario so far recorded for one harvest. This, with the increased activity in lumbering operations, mineral lands and manufactures, will cause a further expansion in mercantile trade and insure another year of prosperity. There never was a time in the history of Canada when labor was so fully employed and so well paid as at the present time. In a good many lines of manufacture the demand for skilled labor can not be supplied, and the output is limited only by this difficulty.

The export trade of Canada is steadily increasing, and this is giving Canadians large sums of money to invest in home enterprises. During the year ended June 30, 1902, the aggregate trade of Canada, taken on a basis of goods entered for consumption and Canadian produce exported, was $398,811,000, or an increase over 1896 of $167,000,000, an increase per head of the population in six years of $30, which, it is claimed, exceeds any growth shown in a similar period by any other country.

The total exports of Canadian produce last year exceeded by $90,000,000 the total in 1896. The exports of Canadian produce to Great Britain in the six years mentioned rose from $62,000,000 to $109,000,000, and those to the United States increased in the same time from $34,000,000 to $66,000,000. While the Americans have been fairly liberal consumers of Canadian goods, Canadian trade with the United States shows a much larger expansion in imports than in exports since 1896. The imports from the United States of dutiable goods rose from $29,000,000 in 1896 to $60,000,000 in 1892. Free goods in the same time rose from $29,000,000 to $60,000,000. The imports of dutiable goods from Great Britain rose in the same time from $24,000,000 to $35,000,000, and of free goods from $8,000,000 to $14,000,000. These figures are especially interesting owing to the fact that they cover the period that the preferential duties on British goods have been in force. In 1896, $17,000,000 duty was collected in connection with the importation of British goods, and, last year, $8,000,000. In 1896, $15,000,000 duty was collected on American goods, against $7,750,000 last year.—London Engineering.

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The Railway Brotherhoods and Undesirable Immigration.

It requires great effort on the part of the working people to secure Congressional legislation for their protection, or to defeat proposed legislation that will work a direct injury to the working people. Cheap labor is the thing most sought by the employers of labor in any country, and to secure cheap labor employers often adopt means that bring dishonor to the country they pretend to love. It was the Southern planters, greedy for gain, who imported the African slaves into the Southern States. The "sins" of these "fathers" have been "visited upon the sons," for the descendants of the African slaves have been a "curse" to the South.

The demand of employers now is for Chinese labor, or the most degraded of European labor. An effort is made by labor organizations to sift out the most degraded of the millions of immigrants that are now deluging the industrial centers of the United States by refusing admission to all adults that can not read and write their own language, and from the opposition to this "educational test" by American employers it would seem that they want this ignorant class of labor, in preference to educated labor.

The printed report of the Senate Committee on Immigration on House Bill 12199, "to regulate the immigration of aliens to the United States," has been made public. On pages 398-401 the following testimony of the representative of the railway labor organizations, Mr. H. R. Fuller, appears:

MR. FULLER: Mr. Chairman, I represent a large majority of the organized railroad employes of the country, and I ask leave to occupy only about five or ten minutes of your time.

THE CHAIRMAN: Proceed, Mr. Fuller.

MR. FULLER: I appeared before the committee during the last session and have no desire to use up any more of its time than is really necessary. I merely wish to reply to some of the statements which have been made by those who oppose Section 3, the educational test qualification, which, in my mind, is the most vital part of the bill.

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I wish first to speak in regard to the statement made by the gentleman who reprented the sugar growers of the Hawaiian Islands (Mr. Haywood). As I understand him he asks that this bill be so amended as to allow Chinese laborers to come into the islands, and he is opposed to this educational test because he thinks it would keep them out. I believe he acknowledged, however, that it would not keep out the Japanese.

I would simply say, in answer to that gentleman's statement, that the Hawaiian sugar planters enjoyed special privileges under our laws for some time before they became a part of our country, and they are here now asking for special privileges, something that is not in keeping with good American principles. They asked us to annex them and I think they should have been willing to adapt themselves to American principles. The American people through their Congress decided a good many years ago that it was not the proper thing to import Chinese laborers. Therefore I think it is a very poor plan to try to Americanize the Hawaiian Islands by importing Chinese. I think it is unfair to the workingmen of this country.

The gentleman says that the labor there is now performed for $17 a month, and that it is 50 per cent. higher, if I understood him aright, than what labor was performed for at the time of annexation. I think it is unfair to the industries of this country, and to the men who are employed in them, to allow Chinese labor, which is obtained for $17 a month, to compete with them, when every man knows that $17 a month to an American workman, a man who has ambition and likes to educate and rear his family in American ways, is a very small item. I think it would be unwise for Congress to grant the concessions the sugar planters of the Hawaiian Islands ask for.

Now, I want to say a word in regard to the statement made by Mr. Anderson yesterday. He said, if I understood him aright, and I think I did, that if you would pass this bill without the educational test, that the provisions which seek to tighten up the bars along the Canadian and Mexican frontiers would answer the cry of the people of this country for a further restriction upon immigration.

I do not propose to speak for the whole country. I am simply here as the representative of about 185,000 railroad men, who, through their lodges and divisions in every State and Territory, have asked specifically for an educational test.

It does not seem to me that the gentleman's statement is borne out by past history. This is a question which has been before the people for a good many years. It has come before our political conventions, and they have passed upon it

I do not desire to enter into any partisan discussion. Far from it. As a representative of the railroad men of this country I have no party. Neither have the organizations which I represent. Their members are organized for the purpose of protecting their trade, and not for partisan purposes. However, since the question of party was mentioned by Mr. Anderson, it will not be inappropriate for me to refer to his argument.

He quoted from a speech made by a Cabinet officer, in which it was said that the Republican party protected the American workman, as I understood it, by protecting the employer. It is true when, through a high tariff, the price of goods is raised it gives the employer the opportunity to pay his employes more wages, but they do not get a fair proportion. If they are well enough organized, they may get an advance in wages, but even then they do not get a fair share of the profits, and I do not think the representatives of that party really believe they do.

SENATOR FAIRBANKS: Of what party?

MR. FULLER: Of the party he spoke of.

SENATOR FAIRBANKS: What party did he speak of?

MR. FULLER: I believe he referred to the Republican party.

The same party in its national conventions has passed resolutions to the effect that there still ought to be some further protection to labor. I think in passing those resolutions they did not do it blindly.

The Democratic platform of 1896 had this to say:

"We hold that the most effective way of protecting American labor is to prevent the importation of foreign pauper labor to compete with it in the home market."

The Republican platform of 1896 said this:

"For the protection of the equality of our American citizenship and of the wages of our workingmen against the fatal competition of low-priced labor we demand that the immigration laws be thoroughly enforced and so extended as to exclude from entrance to the United States those who can neither read nor write."

This is a specific indorsement of Section 3 of this bill. The following will be found in the Republican platform of 1900:

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"In the further interest of American workmen we favor a more effective restriction of the immigration of cheap labor from foreign lands."

SENATOR FAIRBANKS: You are reading from the Republican platform?

MR. FULLER: The Republican platform of 1900.

I do not think the Administration agrees with the contention made by Mr. Anderson that the protection now afforded is adequate. President Roosevelt in his message to the first session of the Fifty-seventh Congress said this:

"The second object of a proper immigration law ought to be to secure, by a careful and not merely perfunctory educational test, some intelligent capacity to appreciate American institutions and act sanely as American citizens."

The President would go further than we have asked you to go in Section 3. I think the test provided for is merely perfunctory. It does not restrict enough to suit the working class of the country, but it is a step in the right direction.

The President in his last message to Congress calls attention to what he said in his former message. He calls attention to the fact that this bill passed the House at the last session, and practically asks the Senate to pass it at this session.

Now, I hope the members of this committee, after considering this bill and having already reported it to the Senate with the educational test provision in it, will not be influenced by the statements of gentlemen who have said or who may say to you that the bill without the educational test is fully adequate, and that it will meet the prayers of the working class of people for the further restriction of immigration, because it will not.

I thank you, gentlemen, for your time and attention.

THE CHAIRMAN: Still you consider that the bill contains many valuable provisions outside of the educational section?

MR. FULLER: I do. We indorse the whole bill. As I said, we are in favor of the further restriction of immigration.

SENATOR MCLAURIN, of Mississippi: Mr. Fuller, if Section 3 was stricken out, would not that be calculated to take away some of the protection to labor which you are seeking to obtain?

MR. FULLER: Undoubtedly it would.

SENATOR MCLAURIN, of Mississippi: That, then, would be to withdraw from the bill one of the provisions which you think is a good provision, not only for the country, but for protection to labor?

MR. FULLER: Yes, sir; as I have already stated, it is the most vital provision of the bill, and I hope it will not be stricken out.

THE CHAIRMAN: We have here the principal officers of the Bureau of Immigration. We would be glad to hear from them, if they will arrange among themselves in what order and at what length they shall desire to be heard.

Labor Notes

Wm. R. Hearst.—The official count shows that W. R. Hearst, editor of the New York American Journal, has been elected to Congress by the astonishing plurality of 15,800. This may rightly be regarded as a sweeping victory for organized labor. More than 500 trade union leaders endorsed and aided in rolling up this tremendous vote for William R. Hearst.

Organized labor in New York and all over the country regard Mr. Hearst as the best friend they ever had. His three great papers in New York City, Chicago and San Francisco, have at all times given organized labor the most hearty, honest and valuable support. The election returns show that organized labor has appreciated a true friend.—Shoe Workers' Journal.

Hard Times in England.—A press dispatch from London, with date of January 14, 1903, says that "the marches of the unemployed which have now become a daily feature are causing uneasiness. About 2,000 persons traversed the metropolis in procession today, escorted by the police. While these demonstrations have thus far been orderly the shopkeepers recall the experiences of some years ago when similar parades ended in the breaking of store windows, and some of them are already taking the precaution of putting up their shutters while the parades are passing."

Purpose of a Good Law Defeated.—The irrigation act of the last term of Congress was for the purpose of reclaiming arid lands in the West, which lands were to

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become the property of actual settlers. The following circular has been issued by the Chicago Federation of Labor:

CHICAGO, Jan. 2, 1903.

DEAR SIR AND BROTHER:

There is a fight on in Congress now which we ought to take hold of quick and strong.

We got the National Irrigation Law through in the last session of Congress, and there is now over *ten million dollars* in the treasury to build Government irrigation works.

But the land thieves are stealing the Government land so fast under the old Desert Land Act and Commutation Clause of the Homestead Act that at the rate they are going the Government will soon have no land left to reclaim.

The land grabbers and speculators are robbing the people of the public lands at the rate of over *two million acres a month. Just think of that!*

Will you not get in and help us to stop it? *The only way to stop it* is to repeal the Desert Land Law and the Commutation Clause of the Homestead Act *in this session of Congress.* Unless this is done the very choicest tracts of public land will be stolen before Congress meets again.

Will you not have your organization pass strong resolutions demanding the repeal *in this session of Congress* of the Desert Land Act and the Commutation Clause of the Homestead Act, as the President recommended in his Message to Congress; and send copies of your resolutions, *as quick as you possibly can*, to your Senators and Representatives in Congress.

Please let me know when you write them and send me a copy of your resolution.

Fraternally yours,
WALTER CARMODY,
Secretary.

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Brotherhood of Railroad Freight and Baggage Handlers.—The following circular makes it evident that the spirit of unionism is spreading throughout the ranks of railway employes:

The Brotherhood of Railroad Freight and Baggage Handlers is a distinct railroad craft organization, founded to improve the terms and conditions of employment for freight and baggage handlers and place them in a position to obtain proper remuneration for their work. "In Union there is Strength." The Brotherhood is organizing and uniting all classes of men employed on the platforms of all railroad freight and transfer houses, terminal, storage and transfer warehouses in the United States and Canada; also the depot baggage handlers employed by the railways. The Brotherhood is conducted on business lines for the benefit of all members. The Brotherhood provides for and takes care of sick members and the burial of deceased members.

All information desired in regard to forming local divisions of the Brotherhood, initiation fees and dues can be obtained by addressing the International Headquarters, 38 Market street, Lancaster, Pa.

Court Decisions

Agreement to Hire Injured Employe for Life.

AN ACTION was brought by John H. Usher against the New York Central and Hudson River Railroad to recover damages for the breach of a contract by which the plaintiff claimed that the defendant employed him to work for life at a monthly compensation of $35, about half pay. There was evidence from which the jury was justified in concluding that such a contract was entered into between the plaintiff and William G. Watson, now deceased, then superintendent of the Hudson River division, one of the defendant's railroads. The plaintiff had been injured while in the defendant's employ as brakeman, the injury resulting in the amputation of his leg, and he claimed the right to damages in consequence of it; and the evidence tended to establish that in the interview between him and Watson, he received a check for $128, being one-half wages for the period that he was laid up, and also received from Watson the promise of life employment as flagman at a certain crossing. The plaintiff, in consideration of the payment, and, as the proof tended to show, of the promise of permanent employment, then executed a general release to the defendant, whereupon he was given the promised employment, and retained it about five and one-half years, when he was discharged without cause. In the supreme court of New York, appellate division, a judgment for plaintiff has just been affirmed, though two of the justices dissented.

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Justice Hirschberg, writing the majority opinion, said:

"The main contention on the part of the appellant is that the contract, if made, was not binding upon the company, for the reason that the division superintendent had no power to make it in the absence of express authority, and that the contract was in itself unreasonable. In Carney vs. Insurance Co., 162 N. Y. 453, 57 N. E. 78, 49 L. R. A. 471, 76 Am. St. Rep. 347, it was held that a contract by which a person was employed for life, made by the executive officers of a life insurance company, assuming to act under a by-law, previously adopted by the board of trustees, empowering them 'to appoint, remove and fix the compensation of each and every person, except agents, employed by the company,' was unreasonable, and not contemplated thereby. The court held that, because the term of office of the trustees was limited by statute, it must be assumed that they would not adopt a by-law authorizing the imposition of unreasonable contracts upon their successors in office. The contract was executory on both sides, and the decision rested upon the construction of the by-law, and a judicial determination of the power designed to be conferred by it. By a parity of reasoning, it may be conceded in this case that the general employment by the executive officers of the defendant of their employes for life would be unreasonable, and beyond the power conferred upon them or upon the defendant by the statute from which it derives its corporate life and functions. But the case presented is not one of a simple and naked contract of employment, but is the case of the immediate and final settlement and adjustment of a claim for compensation for serious injuries alleged to have been occasioned by the defendant's negligence, and the reasoning of the decision cited has no necessary application. In such a case, where an employe has been rendered nearly helpless by the company's fault, and without any fault of his own, it could hardly be said to be unreasonable, in consideration of a release of his claim for damages, for the company to agree to put him to such work as he was still competent to perform in his crippled condition, to pay him for it one-half of what he was previously able to earn, and to keep him at it for life; that is, during good behavior, obedience and competency. It is within general knowledge that such contracts under such circumstances are by no means unusual, and, to whatever other objection they may be obnoxious, they would seem to be free from the taint of unreason, as infringing upon the powers of succeeding corporate officers.

"But even if the contract was beyond the scope of the division superintendent's authority, and ultra vires as to the defendant, the defendant is not in position to assert the fact in defense of the plaintiff's claim. That Watson had authority to settle the plaintiff's claim for damages can scarcely be disputed, inasmuch as the defendant has taken a release of the claim from the plaintiff through his agency, has kept it until the plaintiff's claim is barred by the statute of limitations, has asserted it as a defense in the answer, and has produced it upon the trial. The settlement of the plaintiff's claim for damages is not an act which is ultra vires, and, assuming that the agreement of hiring is such, yet the plaintiff has fully performed his part of the contract, and his cause of action can not be restored to him. The transaction between Watson and the plaintiff was in effect but a single agreement by which the latter released his claim, and the former agreed to hire him for life in consideration of such release. To permit the defense now under consideration would relieve the defendant from all liability on a contract which the plaintiff fully performed when he relinquished his claim. A corporation, when sued, can not set up an ultra vires as a defense to an action for breach of contract, or even for specific performance, when it has had the full benefit of the contract, and the other party has duly performed it; nor will such plea avail, whether interposed for or against a corporation, when it will not advance justice, but will accomplish a legal wrong."

Justice Woodward, writing the dissenting opinion, said in part:

"The judgment in this case should be reversed, because the contract set forth in the complaint, and which is the basis of the recovery, was void as against public policy, and because there does not appear to have been any consideration for the alleged contract.

"Assuming Mr. Watson to have made the alleged contract, and assuming that the minds of Mr. Watson and the plaintiff met in an agreement that, for and in consideration of the plaintiff refraining from bringing an action, the latter should have a life position as gateman, was he in the execution of any agency of the defendant, real or apparent? Was it within the power of the corporation to make the contract in the first instance? If it was not, then, clearly, the defend-

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ant's agent was not acting within the apparent scope of his employment, and the plaintiff could gain no rights under his contract. Corporations are artificial creations existing by virtue of some statute, and organized for the purposes defined in their charters. A person dealing with a corporation is chargeable with notice of its powers and the purposes for which it is formed, and, when dealing with its agents or officers, is bound to know the extent of their power and authority. A corporation necessarily carries its charter wherever it goes, for that is the law of its existence. It follows that the plaintiff must have known, or is chargeable with knowledge of, the corporate powers of the defendant, and of the extent to which its superintendent of a division of the railroad could bind the corporation. Jemison vs. Bank, 122 N. Y. 135, 140, 25 N. E. 264, 9 L. R. A. 708, 19 Am. St. Rep. 482, and authorities there cited. The defendant's purposes could be manifested only through agencies duly authorized or having apparent authority to represent it; and persons dealing with the officers or a corporation, or with persons assuming to represent it, are chargeable with notice of the purposes of its creation and its powers, and with the authority, actual or apparent, of its officers or agents, with whom they deal; and, when they seek to charge the corporation with liability upon a contract made apparently in its behalf, the burden is upon them to prove the authority of the person assuming the act as such officer or agent to so make it. Wilson vs. Railroad Co., 114 N. Y. 487, 492, 21 N. E. 1015, and authorities there cited.

"If it appears, therefore, that the defendant had no lawful power to make a life contract with the plaintiff, it must follow that the division superintendent had no such power, either real or apparent, and that he was not acting within the scope of his agency in attempting to make the contract, if he ever did attempt to do so. The defendant could not, as a consequence, be presumed to have had notice of this alleged contract, and the employment of the plaintiff must, therefore, have stood upon no other basis than that of other employes of the corporation, and his employment, in the absence of knowledge on the part of the defendant that it was being performed under this alleged contract, could not work an estoppel. Railroad corporations within this State have their powers defined by the general corporation law, the stock corporation law and the railroad law." Usher vs. New York Cent. & H. R. R. Co., 78 N. Y. Supp. 508.

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Automatic Coupler Decisions.

The Supreme Court of North Carolina in a recent decision holding that a railroad company's failure to equip its cars with automatic couplers is a continuing negligence, making it liable for an injury to an employe while making a coupling in the discharge of his duties, notwithstanding his contributory negligence, also holding that failure to equip a locomotive with an automatic coupler in general use is negligence as much as the failure to so equip car. (Fleming vs. Southern Railway Company, 42 S. E. Rep. 905.)

Two interesting decisions have also recently been rendered by federal courts, though they are not altogether consistent. In the case of Voekler vs. Chicago, M. & St. P. Ry. Co. (116 Fed. Rep. 867), District Judge Shiras, of the eastern district of North Dakota, rendered an opinion holding that Act Cong. March 2, 1893, requiring cars used in moving interstate commerce to be equipped with couplers coupling automatically, applies to a car designed for interstate traffic, though at the time being hauled empty, and failure to equip a car with a coupler coupling automatically, by reason of which a car coupler was obliged to go between the cars, where he was crushed, is the proximate cause of the accident, though the cars were forced together by the engine kicking all other cars against them. Also that a carrier, by permitting a coupler, originally sufficient, to become worn out and unoperative, is within the prohibition of the act.

In the other case, Johnson vs. Southern Pacific Company (117 Fed. Rep. 462), the circuit court of appeals for the eighth circuit, holds that cars loaded with articles shipped to other States, and started, whether in yards on side tracks, or in trains, are used in moving interstate traffic. But vacant cars in yards, on side tracks, in repair shops, or in trains which are not loaded with, or in use to move articles of, interstate commerce, do not fall within the terms or meaning of the act of March 2, 1893. A dining car standing empty on a side track at an intermediate station, where it had been left by a train engaged in interstate traffic until it should be taken by another train engaged in the same traffic, going in the opposite direction, and which the owner intended to use in interstate traffic, was drawn by a

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freight engine from the side track to the turntable, turned, and placed again upon the side track. *Held:* That the car was not used in moving interstate traffic while it was on the side track and while it was being turned. The equipment, under the act of March 2, 1893, of a car with automatic couplers which will couple automatically with those of the same kind of make, is a compliance with the statute. It does not require cars used in interstate commerce to be equipped with couplers which will couple automatically with cars equipped with automatic couplers of other makes. The act of March 2, 1893 (27 Stat. C. 196, p. 531), does not make it unlawful for common carriers to use locomotives engaged in interstate commerce which are not equipped with automatic couplers.

Contributed

Washington Gossip.

What Congress Is Not Doing. — A chronicle of the present session under this heading would be quite lengthy. It would include many things, both good and evil. Seldom has there been a short session when the members had such an air of earnestly praying that the days would pass so quickly that nothing would be expected of them. About the holidays there was a flurry because it seemed as if the Senate would bestir itself and pass the eight-hour bill in the amended form in which it came from the Committee on Education and Labor.

When the bill emerged from the committee it looked as though the ship-building contractors had labored successfully to see how many mischievous things, contrary to the original spirit of the measure, they could get inserted under the original title. The title was about all the labor people had left.

It is getting to be a standard joke at the Capitol to cut the heart out of any labor measure which may pass one branch of Congress, and then threaten to have the other branch pass the "amended" measure, which will do more damage than no law at all. Recent instances of this have been the Chinese Exclusion measure, which actually became a law, and the Anti-Injunction Bill, which seems not to have awakened from its slumbers this session.

The Eight-Hour Bill, as now before the Senate, provides that eight hours shall nominally constitute the day on government contract work, but that the rule shall be suspended in case of emergency, and any little sub-contractor can invent an "emergency" whenever he feels in the mood. Then the bill provides that an employe may put in eight hours for the government and as many more as he is required on "other work."

What a nice time they would have keeping tab on the eight-hour day under such a plan. And it disposes of the main contention heretofore advanced by the contractors, namely, that men could not be shifted at the end of eight hours without damaging the work. The bill has a number of other provisions which take it a long distance from its original intent. At first it was thought the Senate would pass the measure and send it to the usual joint conference committee and get the acceptance of the House. But now it seems that both House and Senate are too busy with other matters. There is only a month left, and there has to be some show of activity in anti-trust legislation.

It is well understood, however, that nothing is to be done. This weary and expiring Congress is entirely willing to leave that and every other national problem to the next Congress, already elected.

Roosevelt, the Trusts and His Party.— "We Republicans are wondering why people make such a fuss over Roosevelt," said a machine Republican, rather high in the councils of his party, to me the other day.

"Why, don't you admire him?"

"Oh, well, it isn't exactly that, but we feel in our bones that he'll tip the apple cart over one of these days. He's sure to get us into trouble before the next national convention."

"Thought his appointment of the Coal Commission and his attitude on trusts saved the day for you in the congressional election?"

"Well, maybe, we're not saying but he has done pretty well so far, but you never can tell what he's going to do next, and we veterans simply feel that there is trouble in the air."

Roosevelt's independence of thought and speech surely does cause much anxiety to those who believe in the

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routine "machine" management of affairs to bring party success.

With the splendid knowledge of Attorney-General Knox as to just what can be done to curb trusts at his service, the President every day gets more impatient with one Congress which will do nothing because it is nearing its close, and another which is elected but can't get down to business until near the end of the year. It's apt to make him feel, as Mark Twain says, that a king is the ideal ruler, if only he is the ideal kind of a king.

Knox on Trusts.—Only a short time ago Attorney-General Knox transmitted to Congress a statement of how far the Sherman Anti-Trust law would be effective, and what amendments it needed to meet the existing situation. His statement received scant courtesy at the hands of the daily press, but it will repay careful study. Knox is a man of fine intelligence and vast experience in dealing with corporations. He had always been retained *for* them, previous to holding his present position.

Being asked by Roosevelt what could legally be done to *oppose* dangerous trusts, Knox applied the impartial legal training as readily in that direction as the other. Hence what he says about existing laws and necessary amendments may be taken as an impartial opinion coming from a trained mind, thoroughly capable of appreciating every phase of the subject.

But there is no hurry about it. Nothing will be done for at least a year.

Dissatisfaction with the Coal Commission.—Coal gets more scarce and more high every day in the East. There is positive suffering among well-to-do people, let alone the families of wage workers. In Washington the big hotels and apartment houses are comfortably heated, because therein dwell members of Congress, and the coal dealer seems to have received a hint that they must be kept comfortable so they won't confiscate the coal mines for the use of the public. Even the most reasonable of citizens are disposed to grumble at the long delay of the Commission in getting to a decision.

Here are the miners working patiently at the same wages which they struck to improve, and here is the consumer freezing to death and paying the price of rose diamonds for coal—yet the Commission hears testimony and adjourns—and hears testimony and adjourns. There is a strong feeling that it could do better if it would.

Congress has a committee investigating the local stringency of the coal market, but the net result seems to be the information that the situation will be no better for some months to come.

To Prevent Strikes. — Representative Gibson, of Tennessee, has introduced a bill making it the duty of the Attorney-General to apply to the Federal courts for a receiver in case of any strike or disagreement which stops the operation of coal mines. The bill won't become a law, so we needn't waste much time over it, but it is interesting as a sample of the trend of industrial legislation. If it provided that the receiver should employ the men at the wages and hours asked, pending a settlement between their respresentatives and those of the employers, it might be a good thing, but the inference is rather that the receiver should attempt to employ the men on the old terms pending a settlement. Still it would be very awkward for the employers to have the Federal court put some one else in charge while industrial troubles were being settled. A prospect of this sort would make employers more open to reason when their organized employes wanted an advance. But the bill won't pass.

These Voluntary Advances in Wages.—A railroad magnate, sojourning for a few days in Washington, has had himself interviewed and says with delightful frankness that the voluntary advances in wages, of which we have heard much lately, are largely because the men are well organized and were about to make a demand anyway. The concession would have been given to the organization, and the voluntary part of it was merely a grandstand play.

Universities and Unions.—Johns Hopkins and other universities are getting right sensible in dealing with economics. An effort is being made to collect all trade union literature that can be had, including constitutions and official journals, so that the kindergartners in economics may have some idea of the practical trade union movement. The students are urged to read up on such subjects before rushing off to interview union officials. The union official is nearly always an overworked and underpaid individual, and when the callow college youth approaches him, is apt to say:

"Well, what is it you want to know?"

To find out what they want to know is now the laudable aim of many of these

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students. The Johns Hopkins University of Baltimore, Columbia University of New York, the National Department of Labor, and the A. F. of L., at Washington, are among the institutions which are making interesting and valuable collections of literature relating to the organization of labor in this country in the past half century.

EVA MCDONALD VALESH.

Labor Press

Should Trades Unions be Incorporated?

There is no hesitation in answering the above question with the most emphatic no, and organized labor pleads guilty that its position upon this question is prompted by what it considers to be the best interests of trades unionists. It is a noticeable fact that the agitation in favor of incorporated trades unions emanates from sources that have hitherto been most hostile in their attitude towards the American trades union movement. The inference is fair that the gentlemen who insist that trades unions should incorporate are prompted by what appears to them to be their own immediate material interests.

The steel strike of a year ago and the coal strike of more recent history developed all the talk in favor of incorporating trades unions that we know anything of, and that it should be favored by corporations or representatives of corporations who in both of these conflicts have bitterly antagonized organized labor, appear to be most significant. Objections to incorporated trades unions rests, first, upon the needlessness of such a move and, second, upon the danger of bankrupting the treasuries of trades unions by and through court litigations if they should become incorporated.

It is not necessary to incorporate a trades union to insure the inviolability of contracts that may be entered into between trades unions and employers. During the four years that the Boot and Shoe Workers' Union has been in existence we have made contracts with employers from all parts of the country. Our contracts, as all contracts that are worthy of the name, involve mutual obligations and mutual advantages. In our agreement with shoe manufacturers we surrender the right to strike. Our employers surrender their arbitrary right to enforce conditions to their liking by such arbitrary methods as the lockout. We agree that all questions of wages and conditions of labor must be settled by mutual agreement, or in the event of failing to reach a conclusion by that method, then by arbitration. There are certain advantages in this agreement both for us and for the employer. It insures steady work without interruption and large wages that disinterested parties decide are as good as the trade conditions will permit. As a Union we have no right to expect any more than this, and if we did attempt to secure more than this we must fail. Leaving out of consideration all questions of honor, it appears that our own best interests will prompt us to live religiously up to our agreements. Shoe manufacturers do not find it necessary to haul us before a court of law to compel us to live up to our contract. It is not on record that we have in any single instance given our employers occasion to regret that we were not incorporated so that we might be compelled to do that which we otherwise would not do. Until those who favor the incorporation of trades unions are able to show that it is the practice of trades unions to violate their agreements with their employers, they have no case against us.

The danger of such a move to trades unions is clearly indicated in the investigation which is now going on before President Roosevelt's arbitration commission. A glance at the dizzy array of legal talent at the command of the coal operators give us a forecast of what trades unions will be called upon to do in order to protect their interests in a court of law. Coal operators count their resources by the million and hundreds of millions. Trades unions are not so well fixed. Their treasuries are not so abnormally large as that of the designing employer who may find it to his interest to first bankrupt the trades union by legal procedure and then when it is impoverished proceed against them in the industrial field by lockout or otherwise. The Boot and Shoe Workers' Union is the fortunate possessor of a fairly good sized treasury. Every cent of the money at its command must be used to some way promote the interests of its members by advertising Union Made shoes, by paying sick and death benefits, and here and there where it becomes nec-

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essary by carrying on a strike or defending our members against the results of a lockout. While we are abundantly able to do all this, we have not one cent for legal talent to defend us before a court of law. Court litigation is an expensive luxury and can only be indulged in by those who have property interests and large property interests.

We are not of that class and are therefore inclined to leave the practice of these methods to those who can afford it. Shoe manufacturers are today not proceeding against us, not because we are not incorporated, but because we are only too glad to observe every part of any agreement we may have with them. Our experience is that of every other trades union, and until some tangible evidence is introduced to show that it is only by the arbitrary club of court orders that trades unionists can be made to observe the sanctity of a contract to which they are a part, this whole question of incorporated trades unions must be looked upon as a closed incident.—Shoe Workers' Journal.

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Clergymen on the Labor Question.

As might have been expected, the clergymen of this country expressed themselves rather freely on the questions at issue during the coal strike and it was just as natural that they should voice the sentiments of their church constituents. The Journal believes that the great majority were in favor of the miners and their organization, but the minority representing the wealthy classes agreed with the mine owners that the miners were wrong: that to permit them to have a voice in arranging their terms of employment would be to sap the foundation of civic liberty and bring the entire governmental structure down with a crash. In the statements thus made the ideas simply accorded with their personal interests, not that we mean to say they were dishonest and expressed themselves solely for the purpose of courting favor with the wealthy members of their churches, but one generally sees things of the same color as the glasses through which he looks and the personal point of view undoubtedly dominated the expression.

And, again, a few of the better known among the clergy, who have attained distinction in their profession, and in consequence demand the best positions, have been quoted, while thousands of others of less distinction, who have been on the miners' side of the question, have never been heard from.—Railroad Train Men's Journal.

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Division of Wealth Produced.

According to statistics the labor of every adult in the United States produces in value $10 per day. The same statistician makes the statement that labor receives but one-fifth of the value which it produces. Such being the case, how is it possible for the working classes to conquer on the industrial field through the strike or boycott when the wealth necessary to carry on the strike to ultimate victory remains in the hands of the capitalists? What can be gained by a strike or boycott when the trusts are assuming such proportions that enables them to squeeze out the last vestige of competition? In a contest between bank vaults and empty stomachs the human machine much succumb to the inevitable. The neutrality or division of working men in the field of politics should be as criminal in the eyes of unionism as the action of a scab who usurps the place of a striker to win a battle for the employer. Labor must solidify on the political as well as the industrial field, and then the conflict will end in the triumph of the masses.—Miners' Magazine.

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Something Doing.

THE many applications from members in reply to the call for solicitors for subscriptions to the MAGAZINE indicate that the Editor will have splendid support during the year 1903 in his endeavor to build up a great circulation on the outside of the Brotherhood. There is not a locomotive engineer in North America who *can not* afford to pay $1.50 for a year's subscription to the LOCOMOTIVE FIREMEN'S MAGAZINE—and there is not a locomotive engineer in North America who *can* afford to miss the technical matter that is published each month in the LOCOMOTIVE FIREMEN'S MAGAZINE.

If a tired fireman can lay off ten trips a year, and while his engine is out make $50, he has perhaps shoveled 100 tons of coal less, has rested up that lame back ten times—and has made just as much money as though he had "raw-hided" all of the time. If you are interested in this matter write to the Editor for further particulars. Remember that not only locomotive engineers should subscribe for the LOCOMOTIVE FIREMEN'S MAGAZINE, but every roundhouse man and shop man can get fifteen-dollars'-worth of technical information by investing $1.50 in a year's subscription to "the-best-book-on-earth."

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Past Grand Master Sargent Remembered.

The Eighth Biennial Convention authorized the Grand Master, First Vice Grand Master, and Grand Secretary and Treasurer to present to Past Grand Master Sargent and wife, a solid silver service for services rendered the Brotherhood during the past eighteen years. In accordance with the tenor of that resolution, Grand Master Hannahan, First Vice Grand Master Wilson, and Grand Secretary and Treasurer Arnold met in Washington, and on Saturday night, December 13th, in company with Bro. F. N. Gear, of Lodge 10, who is also a representative of the house of the Webb C. Ball Company, jewelers of Cleveland, Ohio, proceeded to the residence of our Past Grand Master, and in the presence of a few invited guests, gave him and his estimable wife the silver token of the esteem and appreciation in which they both are held by the multitude of firemen and those associated closely with them.

The present consisted of a massive oak chest, made up of three drawers and a top receptacle, and it was filled with a solid silver dining service, consisting of 191 pieces. Each silver piece bore the initial letter "S," and the plate, on the outside of the chest, announced as follows:

Presented to
Bro. and Mrs. F. P. Sargent
by the
Brotherhood of Locomotive Firemen
September, 1902.

The service was presented by Grand Master Hannahan, in a delightful and happy vein, and at the same time took on the seriousness of the occasion sufficiently so, that when the Past Grand Master accepted the present, tears sprang to eyes that are accustomed to similar scenes without showing especial feeling, yet it seemed to those present that it was the severance of the final link that had served to hold a chief executive in close touch and communion with thousands of fellowmen and companions for nearly two decades.

Bro. Sargent and wife invited the guests to a royal banquet in their dining-room and after discussing the dinner, adjournment was made to the parlor, where

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music held sway until the midnight hour forced a breaking up of one of the pleasantest and, perhaps, one of the most important incidents (who knows) in the history of the Brotherhood of Locomotive Firemen.

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Winners of the Five Special Premiums.

In accordance with the offer which was announced in the June issue of the MAGAZINE, the following persons have secured the five lots of books offered for the five largest lists of subscriptions which were ordered during the period beginning July 1st and ending December 31, 1902:

Lot 1 has been awarded to Bro. G. A. Stone, of Moncton. N. B., who is a member of Lodge 233, for 39 subscriptions.

Lot 2 has been assigned to Bro. H. E. Bradley of Lodge 255, Arkansas City, Kans., for 39 subscriptions.

Lot 3 goes to Bro. M. E. Sturtevant of Lodge 265, Grand Rapids, Mich., for 31 subscriptions.

Lot 4 has been earned by Bro. J. J. Riley of Lodge 326, Bradford, Pa., for 30 subscriptions.

Lot 5 has been secured by Bro. H. E. Nix of Lodge 422, Greenville, Tex., for 23 subscriptions.

It will be noted that Bros. Stone and Bradley tied for first prize, and in order to decide the matter, we have considered that Bro. Stone was entitled to the first lot, owing to the fact that his thirty-nine subscriptions were first received at this office, according to our records.

It is to be hoped that these Brothers will continue their efforts in behalf of the MAGAZINE as diligently in the future as they have in the past, and even more so, now that there is a chance for them to earn liberal cash commissions for subscriptions ordered in accordance with the rules governing that department of the business. Do not forget that the subscription price to the MAGAZINE has been advanced to $1.50 per year, in accordance with resolution adopted by the Chattanooga Convention.

♣ ♣ ♣

Sparks.

Messrs. Stannard & White, manufacturers of locomotive cab seats, chairs, etc., have removed from Appleton, Wis., to Racine Junction, Wis. Bro. Stannard is well known to the delegates of past conventions, and the comfort of his cab seats has lightened the grief of many a grievous trip.

The Cosmos Pictures Company, of 296 Broadway, New York, have issued a revised catalogue of reproduction of the world's greatest pictures.

The Derry-Collard Co., 256 Broadway, N. Y., have just issued a new catalogue of technical books that will be sent to any address upon application.

After the Directory for this quarter had been closed the following notice was received from Bro. J. P. Meehan, Secretary of Lodge 176: "All members of Main Line Lodge 176 are hereby notified that Bro. J. A. Ives, 202, East Side of Square, Clinton, Ill., has been appointed Collector of the above named lodge."

Bro. C. H. Krigbaum, Secretary of Lodge 475, B. of L. F., writes that information has been received by him to the effect that a person going by the name of M. A. Sullivan is traveling on a receipt purporting to have been issued by Lodge 475. He states that no such person is a member of that lodge, and asks that the members be on the lookout for him.

Bro. A. Middlesworth, Secretary and Collector of Lodge 102, Des Moines, Iowa, has forsaken the scoop, and advises that he has been engaged in the undertaking business since June, 1901, and that another "tallow pot," Bro. F. D. Stalford, is at present located at Perry, O. T., and besides following dentistry is president of the Dental Association of Oklahoma and Indian Territories.

The Albany, N. Y., Journal of December 27, 1902, says: "The state legislative board of the Brotherhood of Locomotive Firemen at its convention held in this city recently, re-elected R. E. Quirk of New York chairman, T. Ryan of Albany secretary and R. Prime of Rochester treasurer. Mr. Quirk will be stationed at the capitol during the session of the Legislature and work in conjunction with the other representatives stationed here. No action was taken on the indorsement of the various candidates aspiring for the appointment of railroad commissioner."

The Kansas City, Mo., Star of December, 18, 1902, has the following: "The legislative committee of the Brotherhood of Locomotive Firemen for the State of Missouri held its annual meeting at the Savoy hotel last evening. Fifteen members, representing all the important lodges

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of the State, were present and they selected officers for the ensuing year as follows: Chairman, Thomas Burke, St. Joseph; alternate chairman, T. J. McMahan, Thayer; secretary and treasurer, L. J. Martz, Kansas City; alternate secretary and treasurer, D. H. Kuhn, Sedalia."

A committee, composed of Bros. John J. Hannahan, Grand Master; C. A. Wilson, First Vice Grand Master, and F. W. Arnold, Grand Secretary and Treasurer, recently visited Washington, D. C., and formally presented President Roosevelt with a card of honorary membership in the Brotherhood of Locomotive Firemen. It will be remembered that honorary membership was conferred upon the President during his visit to the Eighth Biennial Convention held at Chattanooga, Tenn., in September last. Bro. Hannahan made the presentation speech, in which he expressed the great pleasure it afforded him and the entire membership of the Brotherhood to confer honorary membership upon him. The President, in response, expressed his own great pleasure at being enrolled as an honorary member of the organization.

Press reports state that "the card presented to the President is a card in name only. It really is a handsome sealskin album, twelve by fifteen inches in dimensions. The album is lined with heavy watered silk, and within is the President's certificate of membership in the Brotherhood of Locomotive Firemen, finely engrossed upon parchment. The certificate is beautifully illuminated, and the President's name and the locomotive, which is the insignia of the Order, are handsomely embossed. The album rests in a box with a padded sealskin cover. The card is entirely American made and is as handsome as money and artistic skill can produce."

Forum

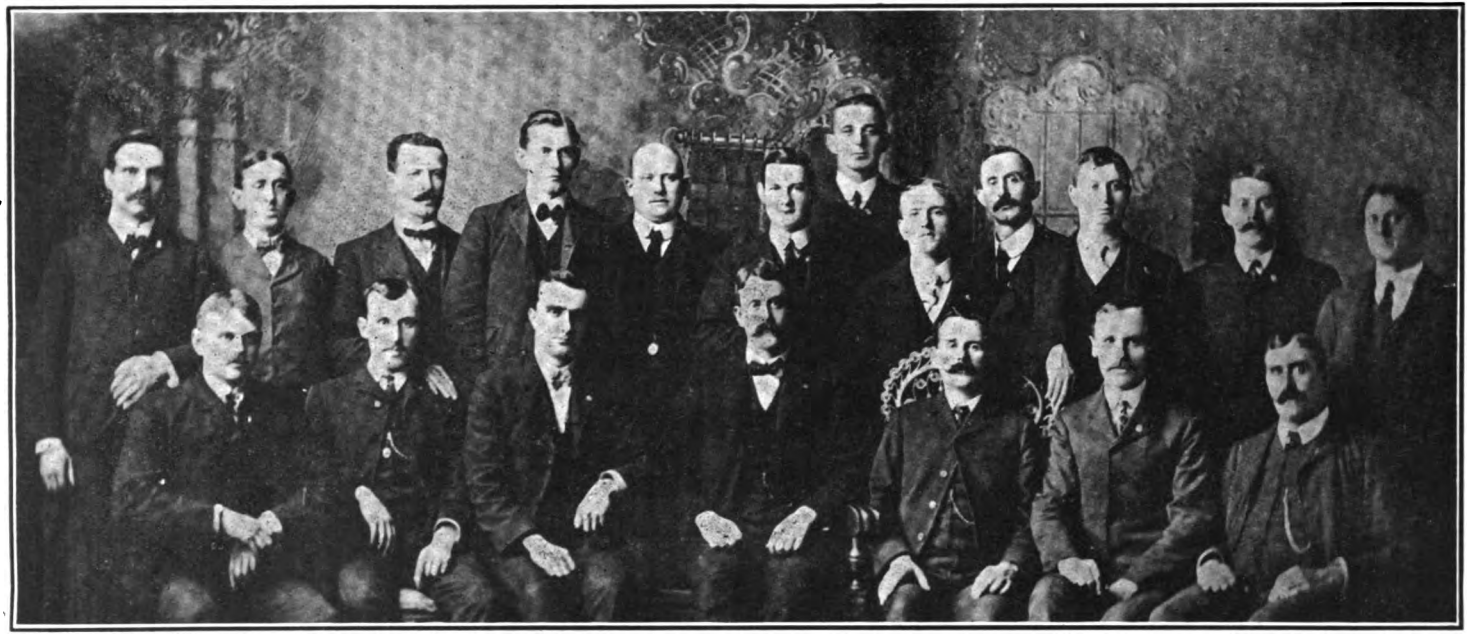
The Pen is Mightier than the Sword.

The old adage, "the pen is mightier than the sword," holds good even unto this day, and it is well that it does. With the power of the pen does civilization advance and will continue to do so until there will be no future need of the sword. The sword is a relic of barbarism and was used in days gone by and to make might, right. History tells us that Tubal Cain, a man of might in olden times, fashioned the sword and that he was so carried away with his new invention that in his ecstasy he cried out, "Hurrah! for the sword! Hurrah! for the hand that shall wield them well, for he shall be king and lord!" This man lived to see the day that he regretted ever fashioning a sword, for by it the land was made red by the blood they shed in their eagerness to become masters of their victories. Heart-broken by what he had done, and to make reparation for his mistake as far as he could, he turned the sword into a plowshare, and he again sang, "Hurrah! for my handiwork! Hurrah! for the man that will till the soil, for he will bring blessings to all mankind instead of misery, poverty, and heart-rendings, as did the sword!"

From the beginning of man, up to recent years, the sword was looked upon as the proper instrument to be used in shaping and forming the destiny of a nation. When a change of government took place in olden times it was usually after a bloody war in which the sword played a most prominent part. There was no educational features about the sword that did very much good, or the one who fashioned it would not have broken down in sorrow when he saw the use of it abused. That the sword was mighty could not be denied. That it was a cruel weapon is equally true. Once it did its deadly work, it mattered not how much any one might regret what happened, there was no calling back from the graves the ones who fell by its deadly use in the hands of the enemy. That the sword has passed out of use in this day and age of the world, except for holiday dress parade, is almost assured, and from its mighty position in days gone by has it fallen to obscurity and its future use no more needed. Its use now is more for an ornament to adorn the walls of the hall or woodshed, as the owner may see fit to do with it.

That there is something mightier than the sword ever was is true and that something is the pen. The pen is one of the greatest inventions ever made by man and its use as an educator is without parallel. The pen was never made to

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N. N. Hicks No. 210 — S. McAuliff No. 363 — M. Hickey No. 418 — C. E. Anderson No. 212 — C. F. Murphy No. 362 — H. F. Cushing No. 121 — Elmer Kane No. 229 — Jas. Cleary No. 99 — C. S. Graham No. 316 — Chas. Johnson No. 92 — C. E. Cunliff No. 12 — J. Richel No. 101

G. M. Haight, Trustee No. 215 — C. H. Umpleby, Sec. and Treas. No. 349 — O. D. Hopkins, 1st Vice-Chairman No. 334 — J. P. Walrod, Chairman No. 92 — David Kelley, 2d Vice-Chairman No. 120 — B. J. Buhl, Trustee No. 230 — F. L. Allen No. 213

JOINT PROTECTIVE BOARD, NEW YORK CENTRAL SYSTEM EAST OF BUFFALO

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take the life of any one, or even to cause misery, poverty, unhappiness, or unrest. It was made, however, that its mission might make people more useful in the way of educating them to a higher moral, social and intellectual plane. The use of the pen has made mankind great, and we have today the masterpieces of works of great men of all times that without the pen would have never been heard of. The use of the pen has diminished the chances of war, and will in time do away with it altogether. The pen has changed public opinion and will continue to do so as long as time lasts. The editors of our newspapers feel the pulse of public opinion by writing editorials on matters of importance to the people and by this method do they place information before the people quicker than any other way.

It is by the use of the pen that the Brotherhood of Locomotive Firemen has placed the Order so prominently before the American people. The Order, through the medium of its magazine, have molded public opinion in its favor. Who dare say that the pen has not been powerful in the hands of those who have by its use helped to promote the interests of the Brotherhood? Our magazine is amongst the foremost of the publications of its kind of the present day. Strikes, like the sword, are mighty in consequence, but strikes will not settle for all time to come the labor question. Strikes may make one or the other yield for the time being, but it is only a matter of time until the controversy will arise again. It is the forceful use of the mighty pen that has made the FIREMEN'S MAGAZINE what it is, what it always has been, and what it will be in the future. If we can accomplish much more by educating the people by having them read our Magazine and enlisting their sympathies in our efforts to better our condition, is it not more prudent to do that than use harsher means to attain the same end? The Magazine goes into the homes of 50,000, and is now read by five times that number. Why not make it possible to issue 100,000 copies each month? It can be done, but will it be done? Each member, if he cared to, could get at least one subscriber. There are some who could get many.

The writer himself has been Magazine Agent in his time, and as far as he knows, holds the record of sending more subscribers to the Grand Lodge than any other member ever belonging to the Order. In 1890 he received the piano that was given away as first prize for the largest subscription list for that year; in 1891, as second prize, a cash permium. I do not mention this to boast of my efforts, but to show what can be done where there is a will to do it. The Magazine is worth every cent that is charged for it. It has helped many a young fireman to pass a first-class mechanical examination. If firemen will study the mechanical department of the Magazine as they should, there will be no such thing as failure when called up for examination. If it is not one thing it is another that can be read in our Magazine that will help brighten the minds of those who care to devote their time to the study of it.

There is also a nice revenue from the sale of our Magazine that should not be lost sight of, and the larger the subscription list the larger the profit. I doubt very much that our Order would wield the influence that it does today had we tried to have gotten along without our Magazine. "The locomotive fireman's companion" is the Magazine, and he gets his Brotherhood doctrines from it as the Christian does his religion from the Holy Bible. If the Magazine in its present form and size was published semi-monthly instead of monthly, the Order would be the gainer by it. To reach the people with our cause should be the first and last consideration, and the cost should not be considered at all. A member of the Brotherhood who does not read the Magazine is behind the times and deserves no pity for his lack of knowledge, and should he fail to pass a mechanical examination he has no one to blame but himself.

The next great war that will be fought in this country will not be by the sword, it will be a battle by the brain, and in this fight will the pen take the most prominent part. Are not the works of Cicero, as written by him, more powerful than the sword as fashioned by Tubal Cain? Is not the story of sacred history telling of the lowly Nazarene more inspiring as written by the pen than anything else on earth? Is not the history of the world's greatest men and women something grand? And if it was not for the mighty pen the world's people would have been less wise—which means poorer in knowledge. When we hear a lecturer that inspires us, we ask that the lecture may be written so it may live forever and so that others may read it. The interests of working people can be promoted by the use of the pen, as in that manner we can reach all classes when pleading our cause. The use of the pen will do more good in

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one year in appealing to the people for what is right, honorable, and just, than could be accomplished by the sword in a century. Therefore, let each and every member put forth his best effort to place the Magazine in the hands of every one that it is possible for them to do in order that the influence of our organization, as well as organized labor in general, may be felt throughout the length and breadth of the land. Let us encourage our editor, who has so faithfully in the past and who so faithfully today gives us such a splendid periodical of which we all are so proud, and let us hope that the pen will always hold its prominent place which makes it more mightier than the sword.

CHAS. W. MAIER.

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The General Chairmen's Association.

In the January edition of the MAGAZINE I notice an article signed "A General Chairman," in which he asks the question, "What is the matter with the General Chairmen's Association?"

I believe that the Brother's intentions are good, and that he desires some discussion of the question through the columns of the MAGAZINE, and that my reply that the General Chairmen's Association is all right would be surperfluous so far as he is concerned.

In order that all the Brothers may have a fair understanding of the question, I wish to give a short history of it, together with the purpose of its organizers.

The Joint Protective Boards of several large railways meet annually in Chicago and, as is natural under the circumstances, it became customary for them to get together and compare notes as to the rates and conditions; it finally became apparent to the members of these boards that our sessions were getting longer and longer, and the assessments larger year by year, without having accomplished any more than we had a few years before in a much shorter period.

We, of course, realized the reason of this, which was that the general managers had formed an association, and when we went to them asking for certain concessions they would pick out the roads that did not give their men what we were asking for, and we would then send out committees to ascertain if the information they had given us was correct, and also to ascertain if there were other roads in our territory who were paying or granting the concessions as we requested.

We found that this took a great deal of time, and often the information which our committee received was unreliable, as it was obtained from Brothers who were not up to date, but, rather than acknowledge that fact to a committee, gave information which was often incorrect; the result often was that the Joint Protective Board went before the officials with this kind of information, and when the officials would show them that some of their information was entirely wrong they would be compelled to drop the question, when reliable information would have secured the concession desired.

To those of you who are thinking men, and have had experience with committee work, it becomes apparent that our assessments were gradually increasing while the concessions we were obtaining for our Brothers were decreasing in the same proportion.

In 1900 the joint protective boards of several of the larger Western lines entering the city of Chicago held a union meeting for the purpose of organizing an association of the general chairmen. After discussing the question it was deemed advisable to appoint a joint committee for the purpose of calling a meeting of the general chairmen with the idea that they would perfect their own organization.

The committee appointed called a meeting for the 1st of May, 1901, at which time several chairmen, representing roads in the Middle States, met and perfected what was known as The General Chairmen's Association of the J. P. B. of the B. of L. F.

The next year we again held a meeting in Chicago, at which time we had about the same attendance, but agreed that in order to make our association a success it would be advisable to secure recognition of our association by the convention which was to be held in Chattanooga. The records of the late convention will show that we were successful in our efforts in behalf of the association, and our right to organize has been recognized by our Brothers in convention assembled.

The aims and objects of the association were the subjects of many discussions in Chattanooga, and there was a general desire on the part of the delegates to obtain information of this nature and, while the members of it who were in attendance did all they could to enlighten those who desired information, yet on account of the limited number it was impossible to give a very general idea of it, and the question which was asked by the Brother

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in the January number will be productive of much good.

The General Chairmen's Association was organized for the sole purpose of obtaining reliable information as to the rates and conditions existing on the different lines of railways; it was the idea of the organizers that if the general managers were giving each other this information it was advisable that we should also have an organization where we could obtain this information, and become enabled to answer an argument in an intelligent manner.

The association is not a political organization, and the promoters of it have thrown every safeguard around it to prevent anyone obtaining any preference on account of its influence. The question of keeping the Association free from this part of our work must always be given due consideration by its members, as in that direction lies the rocks upon which it will split and sink into the ocean of oblivion.

At the present time the officers of this association consist of Bros. Thos. Burke and Edw. Myers, president and secretary, whose addresses are St. Joseph, Mo., and Washington, Ind. Any information desired will be cheerfully furnished on application to either of them, and a little time spent in securing it will amply repay anyone interesed in this line of work.

S. A. BOONE.

The Magazine.

The January number of the Brotherhood of LOCOMOTIVE FIREMEN'S MAGAZINE exhibits the same characteristics of progress and interest that its predecessors have in the past. The Editor explains that even better shall be given after the MAGAZINE is settled in its new quarters, and the usual routine once more established.

The trades union magazine has become a vital necessity to the welfare and growth of any labor organization. Time has demonstrated this beyond any question of doubt. In the commencement of the publication of periodicals to assist in the development a new factor was entered in the labor field that has done more to spread, develop and harmonize the interests of labor than could have been accomplished by the individual talks of many, many men.

The LOCOMOTIVE FIREMEN'S MAGAZINE not only reaches the member or subscriber, but also enters the home and, being read by the wife and children, brings their sympathy and support to the husband and father in his efforts to better his and his fellowmen's condition, and through the children the principles of union labor are planted in the minds of the next generation. The MAGAZINE should not only reach the members of the Order, but the mechanics and engineers, on account of the mechanical matter which would be of value to them, and the non-union men in the roundhouses and the shops, who would not only thus learn matters of interest to themselves in the business they are following, but, what is of great consequence to trades unions, be educated in the needs and principles of unionism, so that in time of labor troubles they would avoid taking sides against organized labor. In addition to this, if they become locomotive firemen they will be anxious to enter the ranks of the Brotherhood with the least possible delay, so that they can aid in the good work which they have been taught is very essential to their future welfare.

At the Chattanooga convention of the Brotherhood the price of the MAGAZINE was raised, so that a commission could be paid to anyone securing subscribers, and also that the book might not be published at a loss financially to the Brotherhood. It was the custom at one time for each lodge to have an agent, who was elected at the same time as the other officers of the lodge. The practice had its advantages and disadvantages. The main objection was that subscriptions were not prepaid and, the agent often taking subscriptions from parties who afterward would not pay, put an unjust bill of expense on the lodge. Often, too, a man was selected for the place who had no ability as a solicitor, and nothing was done. Under the present method there is the danger that what's everybody's business is nobody's business, and that the securing of subscribers for the MAGAZINE will not receive the attention that it should.

There is in every lodge one or more Brothers who have the ability to solicit subscriptions successfully. Each subscriber now represents so much cash to the one securing the subscription, and each subscription also gives full value to the man investing. It is easy to see that if one Brother in each lodge earnestly takes hold of the securing of subscriptions for the MAGAZINE what a large number could be added to the mailing list, and also how much they would thereby be aiding the trade union movement.

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Where any Brother is trying to build up the circulation of the MAGAZINE he should be given the support of the other members of his lodge, who can often help him by a few well-timed words in building up his subscription list.

The MAGAZINE is not only of great value to the fireman who is soon to face the ordeal of examination, but also to the engineer, who must keep abreast of the times if he desires to keep out of the ranks of the "has beens," and to the mechanic who desires to understand the practical working of the machine turned out of the shop.

The field is full of literary magazines, and to push the Brotherhood MAGAZINE among that class of patrons will require hard work, but the right man will do even this successfully. It is not a duty to the MAGAZINE to do this; it is rather a duty to yourself, the Brotherhood and the great principles of trade unionism which you are assisting to spread every time you add a new name to your list of new subscribers.

Education has done and will do much for union labor. By this I do not mean solely education along the line of needs and methods of organized labor, but education in one's calling, for the securing of the best results by the latest methods. An education that makes the union man more valuable to his superior by reason of better service, a better citizen by reason of broader and more intelligent views on public matters, and a stronger factor in the advancement of humanity for the same reasons. The MAGAZINE will help us along these lines, and it should be aided as fully as possible in so doing.

W. L. FRENCH.

In the Field

First Vice Grand Master.

In my last letter I failed to mention my trip through Quebec, while at Hadlow Cove organizing Levis Lodge 610. I was ably assisted by Bros. Jos. Gossoline, C. Lamonbague, Frank Huppe, and J. H. Dandridge of Rock City Lodge 550, and these Brothers know how to handle the goat. Bros. E. Roy and L. Dutil of Lodge 610 say that the candidates sang "I don't care if you never come back."

I found Rock City Lodge 550 as solid as their namesake, and their members up-to-date in all things pertaining to their interest.

My next stop was at River du Loup, Que., a beautiful city on the mountain, and the home of Colonial Lodge 119. Here I found Bros. C. Levesque, C. Delisle, and A. Allard presiding over their lodge with that interest essential to a banner lodge. I am sorry that I did not have the pleasure of meeting with Golden Rod Lodge 504 while visiting the lodges in Canada, however, the lodge is reported to be in good condition by Bros. Bertram, Ackman, and F. Andrews.

My next stop was at Fairville, New Brunswick. Here I found Bros. Wit Nobles, the popular Master, H. R. Bartlett, and J. M. McKiel looking after the interests of the members of Lodge 357. Bro. W. A. Smith is carefully guarding the financial part of Lodge 357, hence the members are kept in good standing. While at Fairville I had the pleasure of Bro. Fred Henderson's company. Fred is known far and near as the war horse of Lodge 357, and he is contemplating going into the horse business so as to get a trotter that will pass Bro. Smith's famous trotter. Success to you, Fred.

While at Montreal I called on the Brothers of 335, and I was sorry that I did not meet Bros. Thomas and Edw. Foley, the popular Master and Secretary. These Brothers were called out on the road before I arrived at the lodge room. I had the pleasure of meeting Bro. Charles Phillips, who reported 335 in good condition. Bro. Phillips is one of those members whom you can depend upon to look out for the welfare of his lodge.

At Toronto I found the members of Lodges 262, 67, and 596 all working with one object in view, that being the interest of their members.

At Hamilton, Ontario, the home of Maple Leaf Lodge 151, I found Bros. M. J. Cummings, J. Pitt and W. J. Dore working like beavers to make theirs the ideal lodge in Canada, and with the watchful eye of Bro. A. Griffith over them they will be successful.

While at Buffalo I had the honor of meeting with the Brothers of J. J. Manning Lodge 472. I found Bro. J. F. Geary, the Master, who by the way, is not employed on a railroad, but whose heart is with the Brotherhood just the same,

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Bros. Henry Shulte, E. Lavell, J. Hagerty and T. O'Brien, who are way up in the watch tower looking out for the interest of their members. While at Buffalo I had Bro. Schean of Lodge 472 examined for the allowance of his disability claim. I also met Bro. J. Curry of Lodge 472. Success to you, John, in all your undertakings. While at Utica, N. Y., I met Bro. Charles Pease and his estimable family. Charlie has not lost any of his interest in the Brotherhood. At Wilmington, Del., I met Bro. Carter, the popular Master of Lodge 231, who with his eagle eye is always on the lookout for his lodge. Bros. C. D. Kohlbecker, W. C. Galigna, P. H. Kirk and E. T. Driscoll of Lodge 231 are members who are always on the alert to see that the laws of the organization are lived up to. Success to you, my Brothers.

During the past few months I have had the pleasure of meeting with several of the joint boards, among them the Baltimore and Ohio. This board conducts their business in a dignified manner, and the members are a credit to the men they represent and the company that employs them. Great credit is due Bros. C. C. Scheaere, A. I. Sheaks and W. D. Lewis for the good condition of this board. The members of the board, as well as the members of Mount Moriah Lodge 319, are sorry to lose the services of Bro. Lewis, and all join in wishing him success in his new field of labor.

We are sorry to hear of the illness of our esteemed friend and Brother, J. D. Schweitzer of Lodge 432, and hope that He who does all things well will restore our Brother to his usual good health, as his services are badly needed in the counsels of his lodge. While at Baltimore I had the pleasure of Bro. Charles Strett's company. Charlie is one of God's noblemen. Bros. C. Pennell, T. R. Stringer and N. O. Robosson of Lodge 432, are just the kind of officers that all lodges should have.

On November 18th I met with the joint board of the Pennsylvania Lines east of Pittsburg, and to say that this is one of the banner boards would be putting it mild. They have the confidence of their members and the esteem of their officials. While meeting with that board the following Brothers accompanied me to the meeting of Welcome Lodge 72: Bros. H. J. Stroh of Lodge 220, L. C. Martain of Lodge 392, C. G. Fray of Lodge 601, S. G. Glassburn of Lodge 347, W. A. Astain of Lodge 85, G. W. Allen of Lodge 463, J. T. Cole of Lodge 310, H. E. Bush of Lodge 347, W. H. Abos of Lodge 3, M. H. Potter of Lodge 235, W. G. Smith of Lodge 287, Thomas Cushing of Lodge 338, and A. J. Shelly of Lodge 250. The popular Master and Secretary, Bros. E. P. Hand and J. Colton, had in waiting eight candidates, and the way the members of the board performed the initiatory ceremony was a credit, and was beneficial to the candidates. Bro. J. T. Cole recited one of his poems, which had its effect on all who were present. After the initiation an experience meeting was held, and all members were loud in their praise of the Brotherhood. I am pleased to say that I found this lodge in a flourishing condition. I was disappointed in not seeing Bro. F. Potts.

On Sunday, November 2d, I organized Oak City Lodge 90 at Raleigh, N. C., making one more lodge to the credit of the South. While this lodge starts out with a small membership, yet with the watchful eye of Bro. Baldwin, Oak City will be the banner lodge of the South.

While at Spencer, N. C., I met with Bros. W. R. Linton and F. A. Smith of Olive Lodge 329. These Brothers hustled around and got the Brothers and their friends together, and I had a very pleasant chat with them, and am looking forward to the time when I will have the pleasure of meeting with these Brothers again. I am sorry that Bro. L. L. Cranford, who was waiting to be examined for the allowance of his claim, had gone away before I arrived. No blame should be attached to Bros. Linton and Smith, for these two Brothers did all they could for Bro. Cranford. It is hoped that Bro. Cranford will let his whereabouts be known, so that the Grand Master can have him examined.

Wherever I have traveled I have heard nothing but praise for the Brotherhood and the MAGAZINE, and the outlook for the organization was never brighter. Let us, as members, renew our obligation, and each bring in a candidate this year, and while we are looking for candidates let us get a subscriber for our MAGAZINE, thereby encouraging our Editor.

C. A. WILSON.

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Second Vice Grand Master.

At this writing it affords me a great pleasure to convey to the readers of the MAGAZINE my personal observations of the Brotherhood as I found it in the field along the line from Buffalo west to Chicago, and to say the least it has been very encouraging to me to know that every-

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where I go I find the Brotherhood progressing rapidly and the membership showing a true spirit of Brotherhoodism and loyalty to the cause which they represent.

On December 1st I arrived at Erie, Pa., and had a very pleasant meeting with Lake City Lodge 462. I find the officers, who are Brother Benson, Master, and Brother Anstead, Secretary, working very hard to build up the Order and they are greatly assisted in their good work by Bro. T. O'Connor, who is, by the way, one of the charter members.

December 2d found me at Conneaut, Ohio, meeting with Nickel Plate Lodge 377. I find this lodge in good condition and great credit is due to the Secretary, Bro. J. W. Miller, for his faithful work.

December 3d I arrived at Ashtabula, Ohio, and had a social talk with some of the members of Western Reserve Lodge 248. They assured me that the lodge was in good condition. I trust that some time in the near future I can return and have the pleasure of meeting with them at their regular meeting.

My next stop, December 4th, was at Painesville, Ohio, where I had a meeting with Shady City Lodge 343. While this lodge has a small membership and at times they are laboring under adverse conditions, and while I am not placing the responsibility upon any particular member, yet I believe there are times when officers are dilatory in the performance of their duties, brought practically by members not attending to lodge meetings promptly and taking their share of the labor and responsibility. There is no reason in my mind why a lodge with a small membership should not be a progressive one, and I trust that in the future the members will be more prompt in attending lodge meetings and encourage and assist the officers in the performance of their duties. I expect to return in the near future to ascertain if conditions have improved.

On December 7th I had the pleasure of attending a regular meeting of Forest City Lodge 10, of Cleveland, Ohio. This is one of the largest and best conducted lodges that I have had the pleasure to attend since my last writing, in fact, they have the best system of bookkeeping of any lodge in the Brotherhood to my knowledge. Every transaction of the officers and members of the lodge is on a strictly business basis. Bro. Buse, the Master, should have every reason to feel proud to have the honor to preside over a lodge of this status. Bro. Frank N. Gear, who is the popular Secretary and Collector, and who is known to nearly all Brotherhood men of this country, deserves great credit for his faithful service in bringing about such conditions of affairs as exist in this lodge, which is keenly appreciated by every member. While there I had the pleasure of meeting our old friend, Bro. Fred Wamser, who is known particularly to the delegates of the Chattanooga convention, and who is doing his full share to make this lodge one ot the best, if not the best, in the country. Bro. Wamser informs me that he is still on the "Erie." I also met, while there, Bro. Curtiss. He is still in the harness and very enthusiastic about Brotherhood affairs.

My next trip was to return to Syracuse, N. Y., and readjust disability claim of Lodge 120, and while at Syracuse I had the pleasure of meeting Bro. Newcomb, Master of Lodge 120, and Bro. Forsyth, Secretary.

December 14th found me in Detroit, Mich., meeting with Standard Lodge 158. This lodge is composed of Grand Trunk Railroad men and is getting along nicely. Bro. Miller, who is carefully looking after the financial end, informs me that while the schedule under which the men are working is not what it should be, yet they are looking forward for better conditions in the near future.

December 15th I had the pleasure of attending a meeting of Wayne Lodge 508, of Detroit, Mich. This lodge is in good condition and credit is due the Master, Bro. McBlain, for his earnest efforts. The faithful and popular Secretary, Bro. Kent, is an up-to-date Secretary in every respect. Bro. Burleson, who is General Chairman of the M. C. R. R. Joint Protective Board, is very attentive to his duties, carefully guarding the interests of the firemen on the entire system.

December 16th found me at Collinwood, Ohio, where I attended a very interesting meeting of Lake Shore Lodge 183. At this meeting I had the pleasure of performing the initiatory ceremony upon several candidates. This lodge is in good condition and is bound to remain that way when you find such officers at the helm as Bros. Eugene Prouty and Fadner.

December 17th I went to Toledo, Ohio, where I had the pleasure of attending a social gathering of Addison Lodge 75, Ladies' Society, where a most pleasant evening was spent. At this meeting I had the opportunity as well as the pleasure of meeting quite a number of the Brothers

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there, and I can say that the hours were pleasantly and profitably spent. Such little gatherings as these are fruitful of much good and will live as pleasant remembrances of the happy occasion.

On Christmas Eve we gave a benefit for Ladies' Society 90, Kansas City, Kan., which was fairly well attended notwithstanding it was during the holidays, which kept some away, as at that time every one was preparing for the celebrating of Christmas time. The Sisters deserve great praise for doing such excellent work in the way of getting up an entertainment and their efforts are appreciated.

After spending Christmas day with my family I again went into the field and did some work before the close of the year. January 1, 1903, found me in Chicago, Ill., on my way to Peoria to attend a meeting with the other Grand Lodge officers in planning work for the coming year. Our meeting was a good one and we all had a thorough understanding of what is to be done, and will do all we can to make 1903 a record-breaker. My first stop after leaving Peoria was St. Louis, Mo., where I held two meetings—one with Lodge 21, the other with Lodge 414. Am very well pleased with how the Brothers are getting along in these two lodges. There is a bright future for them. While in St. Louis arrangements were made to hold some meetings with Lodge 481 on Sunday, February 15th, on which date we expect to have a good time. In the afternoon we will have candidates to initiate; at night a public meeting for the benefit of the lodge will be given. All Brothers who can come to the afternoon meeting should be there, as well as bring their families to the night entertainment. I had the pleasure of meeting with the Sisters of Lodge 151, St. Louis, Mo., at the home of Sister McKinzie, and a pleasant time was had. The Sisters of this lodge deserve credit for braving the bad weather on the day the meeting was held.

A long time between visits to Lodge 164, New Franklin, Mo. I had a pleasant time there and held one profitable meeting on January 8th. Lodge 164 is doing well. The good work accomplished by them is appreciated.

A visit to Moberly, Mo., was one of the pleasant incidents of the trip home. Am always pleased to meet with the members of this Lodge, and appreciate the way they do their business. Hope to meet oftener with them in the future than in the past.

In conclusion I wish to say that business is rushing on every road that I have been privileged to travel over for some time, and let us hope it may continue so, and that our members will have plenty of employment, which means that they are enabled to buy the necessaries of life and properly take care of their families.

Wishing all a happy and prosperous year, I am, C. W. MAIER.

Fourth Vice Grand Master.

On account of joint protective board business, our Grand Master requested me to represent him in Detroit at the union ball and supper, held under the auspices of the four organizations, the B. of L. E., B. of L. F., O. R. C. and B. of R. T., the proceeds of which were to be given to the Railway Men's Home at Highland Park, Ill.

Under the management of such an able and competent committee it could not help but be a grand success, both socially and financially, and any person who did not feel at home there or enjoy themselves should have medical attendance at once, as there must be some derangement of the system. About eight hundred persons were in attendance, among whom was the mayor and several leading citizens of Detroit.

An incident worthy of imitation occurred when Mr. Carhartt, of overall fame, gave the committee a check for $100 towards defraying expenses, and offered to endow a bed in the Home. May his shadow never grow less, and his example be frequently followed.

Such entertainments as these do a great deal of good in bringing our different organizations and fellow-citizens closer together, through which means we become better acquainted with each other's needs, and cements those bonds of friendship and brotherly love which make this world brighter and better for us to pass through. EUGENE A. BALL.

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Correspondence

DEATH OF BRO. FRANK THORNTON—(*Member, Lodge 424, Covington, Ky.*) Poor Frank Thornton is dead and buried. On November 5th he went out on his run, train 6, engine 72. They went to Foster all right, and just as they were leaving there, and had only gone about one coach length, an arch-bar plug blew out of the flue sheet, knocking his feet toward the coal gate and letting his head fall toward the firebox door. That is the way they found him, lying lengthwise of the deck. He was unconscious when found, but as soon as they got him to the open air he revived and knew everyone that spoke to him, although he could not see. This happened about 9:15 a. m. Everything that could be was done for him. There was one doctor on the train and they got another one at Foster. Conductor Woodard told them to spare no expense, but to do all they could for him. There was a westbound train at Wellsburg and an eastbound train at Augusta. H. E. Boughton ordered both engine crews and cabooses to Foster, and Frank was put in John Dugan's caboose and rushed to Madison avenue, where an ambulance was in waiting to convey him to the hospital where the poor fellow died at 12:05 p. m. He was rational and knew everybody by their voice, up until he died. The ends of his toes were the only parts of his body that were not cooked like a piece of meat. We buried him November 7th, about two miles from Mentor, straight over the hill from the west switch of west siding. He was laid to rest with the ceremonies of our Order.

The company furnished a special train for our transportation, which was in charge of Engineer H. Meyer, Fireman Staiger, Conductor Marrer, "Big Dick," and Brakeman Louie Case. There were 103 gentlemen and ladies, besides the children on the train. There were a number of conveyances at Mentor for the ladies, and we formed a procession from there to the church and the cemetery. White gloves and tiny bows of black and white ribbon were furnished for all railroad men, who marched in a body with the firemen at the head of the procession. There was not standing room at the church, and oh! what a sad affair. There were two ministers, one from here who went with us, Bro. Swindler. Our Brotherhood had two floral designs, one a column about three and one-half feet tall, of solid flowers mounted with a dove. The other design was a shield, the two pieces costing $25. The trainmen had an elegant design in the shape of a harp, and there was quite a number of friends who contributed flowers.

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DEATH OF BRO. S. N. KEYSER—(*E. F. Wicker, Lodge 236, Hinton, W. Va.*) A terrible wreck occurred on the C. & O., at Whitcomb, near Ronceverte, on the evening of December 13, 1902, in which Bro. S. N. Keyser was killed instantly. The engineer was fatally injured and died a few hours later at his home in Hinton. The engine was totally demolished, and the mail and baggage cars were derailed. The wreck was caused by the falling of a huge rock upon the track just a few minutes previous to the engine's reaching the spot. Bro. Keyser never realized the cause of his death. His remains were taken in charge by Hinton Lodge 236 and conveyed to his home at Healing Springs, Va., where he leaves a wife and four small children to mourn his loss. The funeral services were conducted by the Masonic Order, of which he was an honored member. He was thirty-two years of age on the day of his burial, and had been four years in the employ of the C. & O. as fireman. Bro. Keyser had a pleasant, sunny disposition, and was liked by all his acquaintances.

Much credit is due Bros. Jackson, Fox, Sydnor, Sigler, Viar, Jones and Payne for the manner in which they prepared the remains for burial. The funeral was well attended by the members of our lodge. Our Worthy Master, Bro. Roberts, could not attend on account of being absent at the time.

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LODGE 267—(*Member, Algiers, La.*) "In the midst of life we are in death." This quotation brings to our minds its truth in the death of our Brother, Jno. P. McCaffery, who, on the 8th day of December, 1902, paid the last debt man owes his God; one minute a strong, healthy, young man with all promises of a bright future, the next a lifeless body. Bro. McCaffery was killed near Franklin. While in the act of cleaning the front end of his engine the passenger train came along and, not noticing the approach of the train, he was struck and instantly killed. His body was prepared for burial

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and shipped to his father in Jersey City. Bro. McCaffery came from Jersey City about two years ago and by his affable disposition he won for himself a host of friends, who tender his family their heartfelt sympathies. Bro. Dillon, of Lodge 145, was running the engine, and also had his leg broken in the same accident. We hope to see Bro. Dillon out amongst us shortly.

Bro. Sam Dickson, our collector, received a Christmas present in the shape of a young son, which is the pride of its fond parents. May he enjoy a long and prosperous life.

A joint meeting was called by Lodge 267, which was largely attended by members of L. S. 162, the members of Lodge 267 being busy and unable to attend. Lodge 159 and L. S. 95 also sent a good representation. After the meeting a spread was enjoyed by all, and we look forward to the next meeting. The committee on joint meeting was Bros. L. Neafus, P. Lafosse, and A. Guillott of Lodge 267, and Sisters LeSeur, Vaughan and Schroeder of L. S. 162. The committee deserves great praise for the way they conducted the meeting.

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DEATH OF BRO. J. O. HILL—(*William Woollen, Lodge 356, Lorain, Ohio.*) It is with a sad and heavy heart that I have to announce the death of a true and trusted Brother, that of Bro. J. O. Hill, who was killed at Girard, Ohio, December 8, 1902. Bro. Hill was a brakeman on the B. & O. R. R., at the time, on the New Castle Division. He was chaining two cars, and while doing so the rear end of the train ran up on him and pinched his head between the two cars, resulting in his death. Bro. Hill was a charter member of Lodge 356. We all lose a true and trusted friend, for he had a kind word for everybody whom he met and was always ready to help a Brother in need. His loss will be greatly felt in the lodge room, for he was one whom we could always look to for counsel, and he was always willing to do anything for the good of the Order. He was loved and respected by all who knew him. The funeral services were held at Greenwich, Ohio, at the home of his wife's parents, being conducted by the B. of L. F., L. S. to the B. of L. F., and F. C. B., as he also belonged to the F. C. B. The large number which turned out to pay their last respects to our departed Brother bore witness of the esteem in which he was held. The floral designs were very elaborate, the Firemen's being in the shape of a harp, the Ladies' Society in the shape of a heart, and the F. C. B.'s a pillow.

How feeble are words to express our sincere sympathy to a bereaved and broken-hearted wife, sister and brother. A. R. Cavner Lodge 356 extends its heartfelt sympathy to these sorrowing ones. and we pray that God will give them strength, and succor them to bear their irreparable loss.

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LODGE 174—(*Member, Harrisburg, Pa.*) Bro. J. L. Felix, the popular Secretary of Lodge 174, met with a painful accident on December 2d by being caught between an engine and car while at work in the Pennsylvania yards in this city. His hip was injured to such an extent that he has been confined to his bed for the past week.

We recently received two hundred beautiful changeable badges from the Whitehead & Hoag Manufacturing Company, of Newark, N. J., and our boys make a fine appearance when wearing the new badges.

The heavy snowfall which visited this section December 12th, caused serious damage to the Harrisburg Traction Company, by the breaking down of one of their large engines, crippling their service to such an extent that the P. & R. R. R. put on an extra passenger train December 15th to accommodate the workingmen who reside here and work in other places.

Bro. Wm. Moran, on behalf of Mrs. Weitzel, mother of our deceased Brother, Wm. Weitzel, presented Lodge 174 with a beautiful crayon picture of the floral design taken to the funeral by our members. In the center of the design is a perfect picture of Bro. Weitzel. The crayon is framed in a handsome gold bronze frame, making a memento suitable to grace the portals of any lodge room. The presentation speech, made by Bro. Moran, was very touching. Bro. Shuman responded, accepting the picture for the lodge.

Bro. Henry Deiter, who was injured about eight months ago on the P. & R., by being thrown from his engine, is able to walk on crutches, but the doctors predict that he will never be able to do manual labor, as his injuries are of a very serious nature.

I must not forget to mention that the Ladies' Society, the pride of Lodge 174, is increasing in membership, and the

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lodge is in a prosperous condition. The members of Lodge 174 take great pride in the Ladies' Society, and well they can, for their membership is made up of our wives and daughters. We love our wives and daughters, and that which we love we take pride in.

Bro. Thos. Yost was agreeably surprised by being presented with a beautiful B. of L. F. emblematic watch charm by the members of Lodge 174. The presentation was made by Bro. Park Nolan, better known as our district attorney, and one thing sure, when Park makes a speech, be it presentation or otherwise, it is made in an attorney-like manner.

Bro. H. Motter, our Past Treasurer, who is now residing in Philadelphia, Pa., was with the boys last Sunday, and we were all delighted to see his smiling face in the lodge room, for Bro. Motter is one of those Brotherhood men whom it affords one great pleasure to meet.

The members of Lodge 174 would be pleased to have the honor of entertaining our Grand Master at a time in the near future, and we trust that circumstances will be such as to bring about such a meeting in the year 1903.

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WRECK ON THE CANADIAN NORTHERN —(*W. F. M. Metcalf, Lodge 593, Port Arthur, Ont.*) The worst wreck in the history of the Canadian Northern occurred near Nickel Lake Siding, 213 miles west of here, on the morning of December 2d, between a light engine, westbound, in charge of Engineer Lemon, and an eastbound passenger train in charge of Bro. Peter Whalen, conductor, in which Engineer Lemon and his fireman, S. W. Yearney, lost their lives. The fireman was killed instantly, and the engineer lived only a few hours, while the engine crew of the passenger train barely escaped death by jumping. The wreck was due to the engineer in charge of the light engine overlooking the passenger train. Mr. Lemon was a Mason, and a member of the B. of L. E. He had been working on this road but a short time, having previously been employed by the Canadian Pacific Railway out of Smith's Falls, Ont., at which place his wife and family reside, and they have the sincere sympathy of the community in their bereavement. Mr. Yearney, although not a member of the Brotherhood of Locomotive Firemen, was highly esteemed by his fellow employes. He had only been firing about a month, having previously wiped in the roundhouse here, from which place he received his promotion. It has been impossible, as yet, to find out the whereabouts of any of Mr. Yearney's relatives, as he carried no identification card, and this being a new road, a person does not have to fill out an application blank when getting employment.

♦ ♦ ♦

LODGE 45—(*O. C. Hille, Little Rock, Ark.*) It is with a sad heart I announce that on November 16, 1902, we had to drape our charter in respect to our departed Brother, J. W. Riffe, who, after a short illness, died in the presence of his wife, parents and the Brothers. His remains were taken to Bald Knob for interment, accompanied by Bros. Turner, McDonald, Erwin and Gamblin, who saw that our beloved Brother was laid to rest as becomes one of the tried and true. To the bereaved wife and parents we, the members of Rose City Lodge 45, and the Sisters of Primrose Lodge 80, L. S., express our sympathy. We wish to thank Mr. Harrity, our N. M., and Bro. Hudson, our engine dispatcher, for their kindness in granting transportation, and for allowing the boys to get off to attend our Brother during his sickness, as they were short of men at that time.

On November 27th, engine 1610, which was pulling one of our fast mail trains, No. 4, turned over near Prescott, Ark., killing Engineer Archibald instantly. The fireman, Bro. Hays, saved his life by jumping, but was badly bruised. He is able to be about again. Engineer Archibald was buried at Little Rock by his many friends.

Bro. M. T. Daugherty has the sympathy of all the Brothers in his bereavement, caused by the loss of his brother on December 15th.

On December 17th, after the regular meeting of Lodge 45 was over, the many Brothers present retired to the ante-room, where the Sisters of L. S. 80 were in waiting with a heavy-laden table, which was trembling under its tonnage, but it was soon as light as a balloon, as every one did justice to the good things, not that they were hungry, but to just keep the table from breaking down. Bros. Reilly, Harding and myself, who were at work, came just in time to eat at the last table with the committee of the Society and other Sisters. We were permitted to attend by our night engine dispatcher, Mr. Tom Morris, for which kindness we all thank him. Say, boys! but we did eat, but we were told that the three of us together did not eat as much as either

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Bro. McGowan or Bro. Dunaway. The Sisters came near sending for the wrecker to have them removed from the table. It was a grand sight to see Bro. F. Hudson swinging those young ladies around, for after supper some one said, "Let us dance," and dance it was. Some of the music was furnished on a piano and some by Bro. Tom. Patton, who is the champion whistler of Lodge 45. Give him a case knife and he can furnish all kinds of tunes. His favorite is "Old Dan Tucker."

About fifteen of our boys have been promoted to the right side this last year, and all are doing well. Keep up your good work, boys. I wish every Brother of the B. of L. F., and every Sister of the Ladies' Society a happy and prosperous New Year.

* * *

JOINT PROTECTIVE BOARD, N. Y. C. & H. R. R. R.—(*Norman N. Hicks, Lodge 210, Schenectady, N. Y.*) There are times during the career of a locomotive fireman when the storms of life seem calm and the clouds are lined with silver: the hard and laborious work is unthought of for the time being, and even the panting of the huge iron monster of the rail is lost in the merry strains of music which would seem to reach far beyond this world into the realms above. However, such things that are connected with the festivities of this life are coupled with some human agency, and the agency that afforded so much enjoyment among the members of the Joint Protective Board of the N. Y. C. & H. R. R. R. (America's Greatest), was Snowflake Lodge 109 of the Ladies' Society, B. of L. F.

The Joint Board of the N. Y. C. & H. R. R. R. System met in the city of Syracuse, N. Y., on the 22d day of October, and after a day of hard and laborious work for the interest of all Brothers employed on this great railway system (east of Buffalo, N. Y.), it was decided by that body to accept the kind invitation which had been received from Snowflake Lodge 109 of the Ladies' Society, and to say that the evening was one of enjoyment is paying the occasion a small tribute. The ladies had arranged everything in order to give the fire boys a royal welcome, and it was a grand success. Every Brother present expressed his appreciation of the reception, either in words or in actions, but I should venture to say that a great majority of the boys expressed their appreciation by devouring the good things which adorned the well-filled table, which was also decorated with beautiful flowers. The fore part of the evening was spent in listening to the excellent music by members of the local lodge. Sister Green was general manager, and she just managed things in queen's taste. Bro. Newcomb took a very conspicuous part; his songs were enjoyed by every one present. As the writer has a very poor memory for names it is impossible to mention all of those who so gracefully entertained the Joint Board.

One of the most exciting events of the evening was the riding of the goat by Bro. David Kelley. It was thought best to remind Bro. Kelley of the time when he was first admitted to the B. of L. F. and, as the goat was feeling fine that evening, the boys gave him a free ride. The incidents of that evening will go down in history as a red letter day, and will be long remembered as one of the most enjoyable events which seldom occur to members of the Joint Board when in session. I wish Snowflake Lodge and all sister lodges God-speed in their great work, which goes to make our noble Brotherhood a grand success.

The Joint Board adjourned to meet in the city of New York, where it perfected with the general management of the N. Y. C. & H. R. R. R. Company one of the best agreements that ever went out over that system. The Brothers all worked like good fellows and fought a hard battle, however, the result was that a great victory was won for all Brothers on the system (of course nonunion men as well). Among the members present on the board was Bro. "Ping-Pong," expounder of the eight-hour movement, and others. Bro. C. A. Wilson, our First Vice Grand Master, paid us a short visit in New York City, and gave us a father's advice. God bless you, Bro. Wilson, and may you be spared to our grand old Brotherhood for years to come.

Bro. T. Shea paid us a visit and gave us good advice. Brothers, our Second Vice Grand Master is a worker and he should receive the hearty support of all members of the B. of L. F.

Bro. Joseph P. Walrod should receive thanks for the good work which he accomplished as general chairman of our board. It is now being voted upon by the lodges of the N. Y. C. & H. R. R. R. system, to see if we shall have a salaried chairman. We trust, however, that our good work will go on and that our membership will profit, no matter how the salaried chairman question does terminate.

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LODGE 465—(*George Haile, Pittsburg, Pa.*) I am one of the many readers of our valuable magazine, which we receive every month, the best book in the world for the firemen. I never get tired of reading the interesting poems and letters from sister lodges in the East and West, North and South, and I wish to let the sister lodges know that Ormsby Lodge 465 is not altogetner dead, if most of us do work on the "last chance," better known as the P., V. & C. R. R.

I will say that our Master, Bro. J. R. Miller, who was delegate to our last convention, is as short and fat as ever, and still has that old laugh. Bros. G. S. Piper, T. S. Krepps, W. I. Blansett and Wm. Gress have been faithful workers and we thank them all.

♦ ♦ ♦

PROCEEDS OF CHARITY BALL—(*Geo. Goding, Sec. Joint Committee, Chicago, Ill.*) I want to say that the Joint Committee of the Brotherhood of Locomotive Firemen of Cook County, Illinois, has completed its labors and turned over to Mrs. T. B. Watson, Secretary and Treasurer of the Railroad Men's Home at Highland Park, Ill., the sum of $451.75 as the result of the late charity ball. There is a large amount standing out, but I am afraid it will always remain so. The committee is thankful that it could give the Home as nice a Christmas present as that, when money was needed so badly as at that time, and the committee, through me, wishes to thank everybody for their help in making both balls a success. While we will not give one this winter, we hope some other city will take the matter up and make just as good a success of it as we of Cook County did. I wish all a happy and prosperous New Year.

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LODGE 174—(*Member, Harrisburg, Pa.*) We are now the largest lodge of the Brotherhood of Locomotive Firemen in North America, which shows that we are not sleeping, and we do not need to beg for candidates; they come and ask for applications, and our medical examiner and the investigating committee look after them.

Our reliable Brother, Felix, still holds down the Secretary's chair, and our Treasurer, Bro. Morn, one of the smallest men in the lodge, is quite capable of taking care of the finances of the largest lodge, and with Bro. Tom Yost in the chair, make a strong team, as he deals out the law fair and impartial to all. We have a new degree, which was gotten up by Bro. Newlin. Our Master, Bro. Yost, was the first to take the degree, and after showing himself so brave, we presented him with a handsome B. of L. F. charm as a token of respect and esteem, thereby showing in a small way our appreciation of his faithful services to the Brothers, this being his second term as Master.

Business on all lines leading to this city, both freight and passenger, has never been known to be heavier. We are all kept busy, but always find time to keep an eye on new candidates just as fast as they become old enough.

Ladies' Society 60, pride of 174, has a boom, and lately has taken in a class, and the boys are waiting the call for a joint meeting, when we can all be fed until we want no more. We are now looking to arrangements to hold a grand union picnic this summer, when we hope to have many of the Grand officers present.

♦ ♦ ♦

DEATH OF BRO. MOUTON—(*Member, Lodge 267, Algiers, La.*) Death in its march has again passed our way, and again youth has been the victim of its selection. At Ramos, La., on the eighteenth day of December, Bro. Mouton met with an accident, having both legs crushed, which caused his death. Bro. Mouton was accompanied to New Orleans by Rev. Father Souby, of Morgan City, who administered to him the last rites of his creed. This kind act of the good father has endeared him to all the Brothers of Lodge 267, and shall never be forgotten by them. This Christian act has been recorded in Heaven amongst those of God's noblest men. Bro. Mouton was a native of Lafayette, La., where the interment took place. The funeral was the finest ever witnessed in Lafayette, being a testimonial of the love and esteem of all who knew him.

♦ ♦ ♦

LODGE 235—(*Member, Pittsburg, Pa.*) We are still doing business at the same old stand, and the goat comes in for his share of the business. I think we should still do better, as there is plenty of good material to work on. So, Brothers, make hay while the sun shines. Come to lodge and give the officers your support, and see if things do not move better.

Our Master, Eddie Long, and some more of our active members have been promoted to the right side. May you all

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have white blocks, Brothers. Bro. W. H. McCreary has returned to duty again after an attack of appendicitis.

It is with sorrow that I announce the death of Fireman H. F. McCormick with that dread disease, smallpox. He was elected to become a member of Lodge 235, but had not been before our medical examiner yet. The members of Lodge 235 extend their heartfelt sympathy to the bereaved parents and friends.

♦ ♦ ♦

LODGE 613—(*James M. Corbin, Seymour, Ind.*) It affords me pleasure to inform you that our little organization of last summer is still growing, and is now upon pretty fair footing. We had our first annual ball Christmas Eve., which was well attended and proved quite a success. Our membership consists altogether of material from the Monon and Southern Indiana Railroads, and we still feel that we are the proper article.

♦ ♦ ♦

LODGE 21—(*A Brother, St. Louis, Mo.*) We are still in the ring, and will continue to be so long as the good Lord has just a little mercy on us. To prove this, will say that a great deal of business was transacted at the last meeting, and applications are coming in right along. The goat is always in good trim, and is ready for all candidates.

Bro. W. H. Davis was married December 25th. Bros. John McClain, of Lodge 44, and J. F. Bushman, of Lodge 18, visited us a few days ago. A bad accident happened Friday, January 9, 1903, at 1:20 p. m., at the mouth of the tunnel in St. Louis, in which the fireman, Bro. Oscar Meldrum, of Lodge 44, was badly injured and scalded by steam, resulting in his death at 6 p. m. at the hospital. The engineer, Bro. W. Young, was also badly burned, but not seriously. Bro. Meldrum leaves a widowed mother. May we all follow his example, and live in such a way that we may be prepared to respond to the call of the Great Master, who doeth all things well. We most deeply feel that in the death of our Brother we have lost a good member.

One of the pleasantest "at homes" was given by the Sisters of 151 L. S. at the residence of Sister Ed. Boyd, assisted by Sisters Frank Enny and Joe Gillis, and Bros. John Kile and S. Lagrange. By 8 o'clock the members were all together, when games and piano selections were in order. Piano selections were rendered by several of the Brothers and Sisters, and at 10.30 the large dining room was thrown open. The house was tastily decorated with ferns and evergreens, with red, white and green lamps. Bro. Louis Voelker acted as toastmaster, and there was good speaking and singing, after which dancing was indulged in until a late hour, when old and young joined in the good, old-fashioned song, "Home, Sweet Home."

♦ ♦ ♦

DEATH OF BRO. S. G. HIGGINS—(*A Brother, Lodge 455, Asheville, N. C.*) It is with deep sorrow that the Brothers of Lodge 455 are called upon to drape their charter, and to mourn the death of their Brother, S. G. Higgins. He received injuries by jumping from a runaway freight train the night of December 19th, but lived until the 22d. In the death of Bro. Higgins, Lodge 455 loses a beloved Brother, who is mourned by all the members and his many friends. Bro. Higgins leaves a mother, father, brothers and sisters to mourn his loss. To these sorrowing ones Lodge 455 extends its deepest sympathy in the loss of one who was loved and respected by all who knew him.

♦ ♦ ♦

COURTESIES SHOWN—(*I. G. Ward, Lodge 344, Trinidad, Col.*) I desire to acknowledge my appreciation of favors shown me by Bartholdi Lodge 309, also by the officials of the Long Island Railroad. My mission was indeed a sad one, accompanying the remains of Bro. M. Deveraux of Mineola, Long Island, N. Y., who was killed in a head-on collision here Christmas Eve. We also lost three other Brothers at the same time. I was met at Jersey City by Bro. Hopkins, Secretary of 309, who had made arrangements to go on to Mineola. This was a great favor, as it was my first experience, and it takes experience to make perfect. I found Bro. Deveraux's parents to be very fine people, and I can never forget the courtesies shown me by them. I felt as though it was and had always been my home. Personally, and as a representative of Las Animas Lodge 344, I sincerely hope that the families of the Brothers who were killed will never pass another Christmas as they did the last. While our loss is great, it can not be compared with the loss to the families of our departed Brothers.

Again I wish to thank those who showed me favors; they are not only appreciated by myself but by Lodge 344. Special credit is due Bros. Smith, Hopkins and Jewell for showing me the wonderful sights of New York City, and many thanks are due the Brothers' wives who sat the fatted calf before me to supply the wants of nature.

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Official

Addresses Wanted.

Requests have reached this office to publish notices inquiring for the present addresses, or any information concerning the following persons. Information should be sent to the person specified in notice:

Charles Z. Dwyer.—At one time a member of Lodge 13, B. of L. F. Was fireman on the Central Railroad of New Jersey for eight or nine years. On September 19, 1899, he mysteriously disappeared. This was after a payday and he was known to have drawn a good sum. All trace of his whereabouts up to this time are unknown. If living he may be going under an assumed name and Western railroad men are asked particularly to try and locate him. His age is 30 years; height about 5 feet 10 or 11 inches; square shoulders; square chin; dark complexion; weight about 155 or 160 pounds; black hair, partly mixed with gray; black moustache, fair size (may have let a beard grow or be clean shaven); eyes a bluish gray; smooth, quick talker; has a scar on the first finger of the right hand; carried a 4-ounce silver case, open face watch, 21-jewel Hampden movement; wore No. 7 hat or cap; No. 8 laced shoes; had nice teeth; chews and smokes tobacco; dresses good; was single, but may now be married. Anyone knowing his present whereabouts will confer a great favor and a kind act by communicating same to William J. F. Dwyer, 407 Elizabeth Avenue, Elizabeth, N. J.

Acknowledgments.

The following persons desire to acknowledge receipt of payment of claims, and to express their gratitude to the Brotherhood of Locomotive Firemen as an organization, and to the individual members for kindnesses and courtesies extended:

August C. Tank, East Buffalo, N. Y.
Henry Frye, Lima, Ohio.
Wm. C. Seaman, Crum, Ky.
N. S. Farrar, Buffalo, N. Y.

Balls and Entertainments.

Courteous invitations have been received at this office to attend the following balls and entertainments. The Grand Lodge force returns thanks and wish all an enjoyable and successful time.

Lodge 470—Fourth annual ball, at Pieron's Hall, Murphysboro, Ill., New Year's Eve., December 31, 1902.

Lodge 582—Second annual ball,, at I. O. O. F. Hall, Richmond, Ind., New Year's Eve., December 31, 1902.

LODGE 218.—Fifteenth annual ball, at Waycott Opera House, Colorado City, Col., Thursday evening, February 19, 1903.

The Home Account.

The following donations were received at the Home for Aged and Disabled Railway Employes for the month of December, 1902:

L. S. to B. of L. F. Lodges—2, $5; 21, $5; 74, $5; 111, $5; total	$20.00
O. R. C. Divisions	58.92
B. of R. T. Lodges	59.35
B. of L. E. Divisions	12.00
L. A. to O. R. C. Divisions	44.18
G. I. A. to B. of L. E. Divisions.	41.50
L. A. to B. of R. T. Lodges	5.00
Mrs. Nettie Pritchard, funeral expenses of F. C. Pritchard	60.00
Interest on moneys on deposit	178.27
Proceeds of ball given by joint lodges of the B. of L. F., of Cook county, Ill., January, 1902	451.74
Grand total	$930.96

Miscellaneous.—G. I. A. to B. of L. E. 60, 116 and 238, each a box of canned fruits; L. A. to B. of R. T. 110 and 126, each a box of canned fruits; L. A. to O. R. C. 68 and 122, each a box of canned fruits; L. A. to O. R. C. 39 and 144, each a barrel of canned fruits; L. A. to O. R. C. 80, two pairs of red blankets; L. S. to B. of L. F. 36, box of bedding; P. H. Morrissey, two boxes A-1 cigars for the boys Christmas.

Notes.—Took Phillip Wilcox to Chicago for X-ray treatment, and three applications completely cured a bad case of epithelioma of the nose. Proceeds of oyster supper given by members of O. R. C. 83 and L. A. to O. R. C. 15, $21.85, credited equally between them.

Respectfully submitted,
MRS. T. B. WATSON,
Sec. and Treas. R. R. M. H.

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Locomotive Firemen's Magazine

Published by the Brotherhood of Locomotive Firemen on the first day of each month, at Indianapolis, Ind.
All correspondence relating to the MAGAZINE should be addressed to the Editor and Manager.
SUBSCRIPTION—$1.50 per year. Entered at the Postoffice at Indianapolis, Ind., as Second-Class Matter.

Beneficiary Statement

OFFICE OF GRAND SECRETARY AND TREASURER,
PEORIA, ILL., January 1, 1903.

TO SUBORDINATE LODGES:

The following is a statement of receipts in the Beneficiary Department for the month of December, 1902:

RECEIPTS.

Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.
1		63		125		187		249		311	90 50	373		435		497		559	67 50
2		64		126		188		250		312		374		436		498		560	
3		65		127	148 50	189		251		313	68 25	375	82 50	437		499		561	
4	128 00	66		128		190		252		314		376		438		500		562	
5		67		129		191		253		315		377		439	32 25	501		563	
6	184 25	68		130		192		254		316		378		440		502		564	
7		69		131		193		255		317		379		441	128 75	503		565	
8		70		132		194		256		318		380		442		504		566	
9		71		133		195		257		319		381		443		505		567	
10		72		134		196		258		320		382		444		506		568	
11		73		135		197		259	80 50	321		383		445		507		569	
12		74		136	48 00	198		260	135 50	322		384		446		508		570	
13		75		137		199		261	62 75	323		385		447		509		571	61 25
14		76		138		200		262		324		386		448		510		572	
15		77		139		201		263		325		387		449		511		573	
16		78		140		202		264	69 25	326		388		450		512		574	
17		79		141		203		26	240 00	327	252 50	389		451		513		575	
18		80		142		204		26		328		390		452		514		576	
19		81		143		205		26		329		391		453		515		577	40 00
20		82		144		206		26		330		392		454		516		578	
21		83		145		207		27	9	331		393		455		517	71 00	579	47 25
22		84	166 50	146		208		27	0	332		394		456	72 00	518		580	
23		85		147		209		271		333		395		457		519		581	
24		86		148		210		272		334		396		458		520		582	
25		87		149		211		273		335		397		459		521		583	48 50
26		88		150	214 00	212		274	58 50	336		398		460		522		584	
27		89		151		213		275		337		399		461		523		585	
28		90		152		214		276	147 75	338		400	185 50	462		524		586	
29		91	203 50	153	137 25	215		277		339		401		463		525	79 25	587	
30		92		154		216		278		340		402		464		526	32 00	588	
31		93		155		217		279		341		403		465		527		589	
32		94	268 25	156		218		280		342		404		466	219 00	528		590	
33		95		157		219		281	196 50	343	27 50	405		467		529		591	34 00
34		96		158		220		282		344	156 00	406		468	33 25	530	187 00	592	
35		97	187 00	159		221		283		345		407		469		531		593	
36		98		160		222		284		346		408	158 50	470		532		594	
37		99		161		223	178 00	285		347		409		471		533		595	56 25
38		100		162		224		286	291 75	348		410		472		534		596	
39		101		163		225		287		349		411	227 75	473		535		597	
40		102		164		226		288		350		412		474		536		598	
41	49 75	103	172 25	165		227	60 25	289		351		413		475	116 25	537	108 50	599	
42		104		166		228		290		352		414		476		538	116 00	600	
43	79 00	105		167		229		291		353		415		477		539		601	
44		106		168		230		292		354		416		478		540	145 50	602	110 50
45		107		169		231		293		355	152 50	417		479		541		603	
46		108	128 75	170		232		294		356		418		480		542		604	
47		109		171		233		295	214 50	357		419		481		543		605	
48		110		172	79 75	234		296		358		420		482	134 75	544		606	
49		111	144 00	173		235	312 50	297		359		421		483		545		607	
50		112		174		236		298		360		422		484		546		608	
51		113	207 00	175	344 00	237		299		361		423		485		547		609	
52		114		176	165 50	238		300	156 25	362		424		486		548		610	
53		115		177		239		301		363		425		487		549		611	
54	179 50	116		178		240		302		364		426		488		550		612	71 50
55		117		179	22 00	241		303		365		427		489		551		613	
56		118		180		242		304		366		428		490		552		614	
57	530 25	119		181		243		305		367		429		491		553		615	75 50
58		120		182	233 00	244		306		368		430	138 00	492		554		616	
59		121		183		245		307		369		431		493		555		617	
60		122		184		246		308		370		432		494		556	54 75	618	15 00
61		123		185	102 50	247		309		371	115 50	433		495		557		...	
62		124		186	61 00	248		310		372		434		496		558		...	

Received during month of December $10,200.00

Disbursed during month of December, account Beneficiary Claims { 8 $1,500 / 1 500 } $12,500.00

Respectfully submitted,

G. S. and T.

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Protective Fund Assessment Notice No. 1.

PEORIA, ILL., February 1, 1903.

To the Treasurers of Subordinate Lodges:

DEAR SIRS AND BROTHERS—You are hereby notified of an assessment of fifty (50) cents for the Protective Fund for the quarter ending March 31, 1903, due notice of which was mailed to all lodges on January 2d.

You are required to forward the above amount for Protective Fund for each member whose name appears on the rolls of membership January 31, 1903. Said remittances to reach the Grand Lodge not later than February 20, 1903.

In making returns for this assessment you will use the same set of statements upon which you make the returns for beneficiary assessment No. 115, levied for the month of February.

Yours fraternally,

F. W. ARNOLD, G. S. and T. J. J. HANNAHAN, G. M.

Beneficiary Assessment Notice No. 115.

To the Treasurers of Subordinate Lodges: PEORIA, ILL., February 1, 1903.

Dear Sirs and Brothers—You are hereby notified of the following deaths and disabilities:

Claim No.	NAMES.	Lodge No.	Death or Disability.	Date.	Cause.	Am't.	When Paid.
2296	Herman B. Shafer	230	Disability.	Oct. 6, 1902	Amputation right arm	$1.500	Nov. 29, 1902
2297	Wm. P. Mischo	192	Death	" 9, "	Railroad accident	1.500	" 29, "
2298	John E. Gallaway	308	"	" 9, "	Typhoid fever	1,500	" 29, "
2299	Fred M. Jones	135	"	Aug. 2, "	Meningitis	1 500	Dec. 1, "
2300	Edward Gorman	284	"	Jan. 29, "	Pneumonia	1,500	" 9, "
2301	Chas. C. Davis	99	"	" 11, "	Railroad accident	1,500	" 9, "
2302	John W. Miller	219	"	Aug. 12, "	Heart disease	1.500	" 9, "
2303	Michael L. Ward	209	"	" 23, "	Congestion of brain	1,500	" 9, "
2304	R. H. Skidmore	333	"	Sept. 2, "	Typhoid fever	500	" 9, "
2305	Henry Diehl	237	Disability.	Aug. 15, "	Amputation of right leg	1.500	" 22, "
2306	Luke V. Hon	230	Death	" 23, "	Derailing of engine	1,500	" 31, "
2307	John Miller, Jr.	129	"	Nov. 13, "	Consumption	1,500	" 31, "

Assessments for death and disability claims are hereby levied as follows: For each member whose name appears on the rolls of membership January 31, 1903, (also for all members having taken a withdrawal or transfer card after January 1st, and for all members who died or were totally disabled since that date), carrying a Beneficiary Certificate of THREE THOUSAND ($3.000.00) DOLLARS you are required to forward the sum of FOUR DOLLARS AND TWENTY-FIVE CENTS ($4.25); for those carrying a Certificate of TWO THOUSAND ($2,000.00) DOLLARS you are required to forward the sum of TWO DOLLARS AND SEVENTY FIVE CENTS ($2.75); for those carrying a Certificate of FIFTEEN HUNDRED ($1,500.00) DOLLARS, you are required to forward the sum of TWO ($2.00) DOLLARS. For those carrying a Certificate of ONE THOUSAND ($1,000.00) DOLLARS you are required to forward the sum of ONE DOLLAR AND FIFTY ($1.50) CENTS, and for each member carrying a Certificate of FIVE HUNDRED ($500.00) DOLLARS you are required to forward the sum of SEVENTY-FIVE ($0.75) CENTS. Said remittances to reach the Grand Lodge not later than February 20, 1903, as provided In Section 61 of the Constitution.

Yours fraternally,

F. W. Arnold

G. S. and T.

SPECIAL NOTICE.—All remittances must be made by BANK DRAFT, MONEY ORDER, OR EXPRESS ORDER Members initiated on and after February 1st, are not liable for this assessment. Treasurers are required to forward $2.00 Grand Dues for each new member initiated since last returns were made.

It will be noted in the right hand column that the above claims are all paid and the date of payment given.

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From the Grand President.

IT IS evident from the number of letters we are receiving that the officers and members have not carefully read the instructions which have appeared in the November and December, 1902, MAGAZINE, relative to the laws which would go into effect January 1, 1903, and especially to the payment of semi-annual grand dues and quarterly dues.

All members whose names appear upon the rolls on and after January 1, 1903, will be required to pay semiannual dues for the six months ending June 30, 1902. This will apply to *all* members. While it may be true that members who were admitted prior to January 1, 1903 (and in this we especially refer to the "old" members), hold receipts showing that their dues were paid for the fiscal year ending June 30, 1903, yet the fact still remains that the new law, which is now in effect, and which they enacted through their duly accredited representative at the Sixth Biennial Convention, requires that all members pay an additional 50 cents as grand dues for the six months ending June 30, 1903. Therefore, to be a member in good standing it will be necessary for *all* members to pay to the Collector of their respective lodges the sum of 50 cents as grand dues for the six months ending June 30, 1903. There should be no misunderstanding on the part of the officers and members in regard to this requirement. The Sixth Biennial Convention increased the grand dues to $1 per year, payable semiannually. This went into effect January 1, 1903, and is today a law binding upon all members.

To properly conduct the affairs of the Grand Lodge office in a business-like way, it was found that the per capita tax of 50 cents per annum was not sufficient. The matter was fully discussed by the delegates at the convention. It was admitted by all that the time had come for the office of the Grand Lodge to be arranged so that there will be proper provision made for the recording and filing of all papers and for the prompt dispatch of all business between the Grand Lodge and the subordinate lodges. On account of the vast amount of business which passes through the hands of the Grand Secretary and Treasurer, brought about by the large increase in membership and in the number of lodges, the time had come for the establishment of a well equipped office. While the organization was small the affairs of this office might have been handled at the home of the Grand Secretary and Treasurer, but with the many important questions which were daily arising on account of the increased liability of the Society, the old order of things could no longer prevail. We are satisfied that the manner in which the business of the Society is now conducted will convince all that the delegates showed wisdom when this change was made.

There also seems to be a misunderstanding in regard to the payment of quarterly assessments. In the payment of advanced quarterly assessments there is no additional expense to the membership. Instead of the members paying these assessments monthly, as has been done heretofore, prior to January 1, 1903, they will pay them quarterly in advance. In addition to the regular quarterly local dues, the members will pay, who carry a $200 policy, and those who carry a double policy in proportion, 60 cents on account of advance assessments. For example, if the local dues were 50 cents per

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quarter, then the member carrying a $200 policy would pay to the Collector of her lodge, on or before the first day of the quarter, the sum of one dollar and ten cents ($1.10), which would include her local dues and her advanced assessment. Of course if the semiannual Grand dues were due, then she would pay the additional 50 cents. There will be but one assessment levied per quarter by the Grand Secretary and Treasurer, notice of which will be served upon the Treasurers, who will be required to immediately remit the same for all members liable.

This entire matter has been fully explained in the December issue of the MAGAZINE, and it is to be hoped that, with this additional explanation, the officers and members of all lodges will fully understand the requirements. If the membership will aid us in the work by cheerfully complying with the laws which have been enacted, there will be no cause for complaint. Our membership is daily increasing and in a very short time we will pass the five-thousand mark.

We are glad to advise the membership that the money which was held on deposit in the Albany Savings Bank in the name of Emma E. Dempwolf, our late Grand Secretary and Treasurer, has been turned over to Grand Secretary and Treasurer Mary E. DuBois, and will be credited to the account of the Ladies' Society.

A letter received from the Treasurer of Lodge 53, located at Trinidad, Col., tells of a head-on collision which resulted in making desolate the homes of five of our members. Our heart beats in sympathy with the families and little ones of our departed Brothers in this their great hour of grief. We pray that our Heavenly Father will comfort them and give them courage. None of us can tell when the blow will fall upon us, and therefore we should strive to do our full duty and in our everyday walks of life exemplify the mottoes of our Order, that of Friendship and Charity. GEORGIE M. SARGENT.

From the Chairman of the Board of Grand Trustees.

Depending on Collectors.—There are many of our members who depend upon the Collector of their lodge to hunt them up and collect their dues and assessments. Why should they expect their Collectors to do this?

The amount you pay for your assessments covers the cost of your protection, the amount you pay for your quarterly dues goes toward keeping up your home lodge, and the amount you pay for Grand dues goes toward paying Grand Lodge expenses.

Each member derives the same benefit, and each one is under the same obligation to help carry on the business of the lodge and promote its interests.

Are those to whom your policy is made payable of so little concern to you that you will expect the Collector of your lodge to look after their interests? Can not you find a few minutes to call on her, or send your dues to her? If you can not, why should you expect her to attend to the business that is yours, not hers.

No one should claim the right of all benefits, when they look to others to do their work. It certainly is too much to expect the Collector of your lodge to take up her time to notify you—that you are delinquent—and then wait for her to write and coax you to pay up, before such a time, so you may not be suspended.

Our new laws go into effect January 1, 1903. All dues and assessments must be in your Collector's possession by the 1st and must be sent to the Grand Lodge before the 9th. From your home to your Collector's is no farther than it is from her home to yours.

Remember, it is not your Collector that suspends you, you suspend yourself if you do not make your payments. Have you ever thought, dear Sister, that it is only carelessness, neglect or indifference on your part, that will leave those who are near and dear to you, unprotected.

MRS. GEORGE GODING,
President 146.

The Moral Influence of the Ladies' Society.

Perhaps the moral influence of the Ladies' Society appeals more strongly to us—we who are very much interested in the B. of L. F. and live in the West—for the West is where Satan is getting in his work.

The writer is the mother of two sons who fire on the N. P. R. R., and naturally meets many of the B. of L. F. boys, who are here in Montana, and a more genial warm-hearted lot of "laddies" never lived. Almost invariably, they have been well raised and well educated. Many of them are without wives, mothers or relatives, some of them mere boys. Do we not owe a duty to them?

The B. of L. F. has always been kind-

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ness itself to the Ladies' Society, often paying for supplies, charters, etc., as our boys did when we started. Joint meetings such as we held last night (our first) demonstrate how much the boys look forward to the ladies coming in and joining them.

If we have the inclination there are many nice amusements that we can furnish. The writer wishes she might impress every Sister with this fact—a world of good may be accomplished by surrounding our B. of L. F. boys with that influence which is not found in the street.

MRS. IDA B. LOUCKS,
Chaplain 168.

♠ ♠ ♠

Good Cheer.

It ought not to be a matter of unusual moment to observe a generous number of members assembled in a hall, where a meeting of the Society is being held, but recent letters show that past meetings, held by some lodges, have shown a lack in this respect oftener than not, for now, that presentable lodges—numerically speaking—have been observed, particular mention follows.

One Sister writes: "Where formerly we have seen ten or twelve members on hand for a meeting, it is now no novelty to find twice that many waiting to hear the gavel fall."

This is no temporary awakening, and whatever the cause, there is reason for sincere congratulation.

The Ladies' Society has not been born again. It was founded on principles broad enough, progressive enough, to keep pace with the times—it was the same society today that it was yesterday and it will be the same society tomorrow and tomorrow's tomorrow; but firemen's wives are comprehending more than ever before that the Ladies' Society means something to them. Many of them are giving all their attention to this—their "own society," at the risk of being accused of neglecting other movements. They realize that there are enough others to do the other work.

Another Sister writes: "Even the 'stay at-homes' have put on their bonnets and come forth to lend a willing ear and a helping hand."

Rest assured, Sister "Stay-at-Home," you are aiding by your presence a cause that is growing so steadily and surely, that it will occasion no surprise, when at the next convention, our Grand President proudly reports its membership doubled.

Notes.

Smile.—A smile is contagious. Better a little judicious levity, than to go through life as if each day were a new big funeral and you were always the chief mourner.

All changes or corrections for the Ladies' Society Directory should be referred to Mrs. Mary DuBois, Grand Secretary and Treasurer, Boone, Iowa.

"Don't expect your officers to furnish all the fuel for the steam of enthusiasm and for the fire of energy."

Let your words be bonds, your oaths oracles,
Your love sincere, your thoughts immaculate,
Your tears, pure messengers sent from the heart,
Your heart as far from fraud as heaven from earth.

Is there any sense or reason in a member thinking, just because another Sister does not believe as she does, about some lodge question, that that Sister is opposed to her for life? She is only opposed to her until the question is decided.

You can darn and make and mend, you'll have time to bake and brew,
To kiss the wee lad you've protected, and belong to the Society, too.
You don't need to believe in "suffrage," nor always have something to say,
The Sister who comforts the sick ones is seldom afflicted that way.
She attends to her everyday duties, is simple and honest and true,
Is mother and seamstress and baker, and belongs to the Society, too.

When you hear a member constantly finding fault with her own society, you can make up your mind that she has become enamored of some other society, and much as we deplore the loss of even one member, it will be better for us, if she join that other society as soon as possible—for the thoughtless censure of one member does more harm than the severest criticism of twelve outsiders. Too late, perhaps, she will become aware of this fact: The safest possible insurance, and the cheapest, can be furnished by an insurance society, composed of, practically, young women, where the average age of the membership is decreasing, not increasing.

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Etiquette of the Lodge Room.

When the chairman puts the motion to vote she says in substance: "Those in favor of the motion will please say aye," after the response she says, 'Those opposed, no."

In putting a motion to vote, the chairman need not repeat it. She has already stated it, and members should be able to retain the motion from the time it is stated until it is voted upon. If decided in the affirmative, the chairman will announce the result of the vote by saying: "The motion is carried," or "The resolution is *adopted;*" do *not* say "The resolution is *carried.*" If decided in the negative she will say "The motion or resolution is lost."

A question referring especially to the chairman should be stated and put to vote by the one who made it, unless the By-Laws of a society provide otherwise.

Referring to herself the chairman should always use her official title thus: "The chair decides" (so and so), or "The President decides" (so and so), never "I decide."

When the chair announces the result of the vote, the matter is decided, unless the vote is doubted or reconsidered, and the secretary records the result.

♦ ♦ ♦

Open Parliament.

(4) Must a motion be seconded before it can be stated by the President?

(*Ans.*) In the Ladies' Society, yes, for the by-laws say so. Where there is no by-law governing this matter, the chair may state a question, which has not been seconded, taking the stand that every member has an equal right with every other to introduce a motion and have it placed before the assembly, or she may require a second, believing that a measure which has not, at least two supporters should not be permitted to occupy the time of the assembly. Personally the writer, when presiding, prefers to have all motions seconded and believes a second should always be insisted upon, in cases of nominations, undebateable questions and appeals.

(5) What is meant by "stating a motion?"

(*Ans.*) After the motion has been made and seconded, the chair repeats it—this is called "stating the motion" and is done in order that all may hear. Members in the rear of a hall do not always understand motions made by those far in front. A motion is not in the possession of the assembly and can not be debated or acted upon in any way until it has been stated by the chair.

(6) May a member of a committee second the motion "That the report of the committee be adopted?"

(*Ans.*) She may, or she may "make" the motion. "At the conclusion of the reading of a committee's report, the chairman, or some other member, moves the adoption of the report."

In lodge work, through courtesy, *some other member*, usually makes the motion, but in correct legislative practice, the chairman of the committee moves the adoption of the report.

(7) One of our officers handed in her resignation. The motion was made "That it be *not* accepted." Was that the proper way to make the motion?

(*Ans.*) A motion put negatively, is always confusing. A better motion would have been "I move that the resignation be laid on the table."

♦ ♦ ♦

"Lots of time for lots of things,
Though it's said that time has wings.
There is always time to find
Ways of being good and kind;
There is always time to share
Smiles and goodness everywhere;
Time to send the frowns away,
Time a gentle word to say.
Time for helpfulness, and time
To assist the weak to climb;
Time to give a little flower,
Time for friendship any hour;
But there is no time to spare
For unkindness anywhere."

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Letters From Friends

FROM L. S. 15.—(*President, Cleveland, O.*) I am very proud of the good work done by L. S. 15 of Cleveland, during the last year, and would like the other Sisters to know how well we have done in a few things.

At the beginning of the year, Bro. F. N. Gear of No. 10, made the Sisters a prize offer. It was this: "To the Sister bringing in the highest number of candidates for membership from January 1st to June 30th, and also to the one bringing in the second highest number, he would give a solid gold L. S. pin, and each Sister who would bring in five members would be entitled to a prize pin." Bro. Gear had preambles printed explaining the benefits of our Society; and we distributed them among the ladies eligible to membership.

Encouraged by the efforts of this Brother, the Sisters worked hard and we gained sixteen new members. Sister Sadie Cavanaugh won first prize, and the second was awarded to Sister Beninghoff. Bro. Gear was given a unanimous vote of thanks.

Last month we gave a benefit card party for St. Alexis Hospital. Ten prizes, donated by different firms in the city, were awarded. The party was a success. The committee faithfully carried out every detail and the hospital received thirty dollars—the result of our labors—and it will be used in their good work of charity.

We are having very pleasant meetings, taking in new members every month. We will initiate two candidates at our next meeting and ballot on one. All Sisters are welcome.

♦ ♦ ♦

FROM L. S. 171 (*Mrs. Mary Burns, Austin, Minn.*) Golden Jubilee Lodge 171 was organized at Austin, October 28, 1902, by Sister Murray of Minnehaha Lodge 57, with twenty-two charter members. Since that time we have added four more to our list and hope to secure others in the near future, although we have nearly all the ladies now that can join. But I believe that a number of "our boys" are contemplating matrimony. Oh! let it be soon, boys, so that we may add more members to our lodge.

We gave a fifteen-cent supper and had a "grab-bag;" after supper we had a short program by the little folks, which was much enjoyed by all. Being new at the work, we did not expect such a large crowd and such liberal patronage, therefore our refreshments and grab-bag gave out long before we wished they had. We netted the neat sum of twenty dollars.

I must say a good word for our Brothers. They certainly are a noble lot of jolly, good-hearted, honest young men (no, not all young; there are a few old bachelors, but without them we would be lost). To our Brotherhood we owe our thanks for ever being organized. They worked long and hard in trying to have a Ladies' Society here.

We gave a farewell party December 4th to Sister Clark, and after a dainty spread prepared by the ladies they presented her with a silver cake stand with "L. S. B. of L. F." engraved on it. We regret very much that Sister Clark has gone from our midst. She was our first Conductor and a good worker, ever ready to do her part in making everything a success; she had a bright smile for every one. We all wish her success in her new home in St. Paul.

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FROM L. S. 115 (*Mrs. F. E. Sells, Cleburne, Tex.*) On November 10th I went to Somerville, Tex., to organize Lodge 174, known as Cape Jessamine's Helper, I was met at the depot by the ladies and escorted to the home of Sister Mollie Brown, formerly of Cleburne. After a few minutes' rest I was given a drive over the city. At 7.30 we went to the home of Miss Clara Seibel, where a reception was held in my honor. Music and song were the principal features of the evening. Tuesday morning, November 11th, we went to the hall to begin the work of organizing Lodge 174, with seven charter members, all of whom are willing workers and anxious to see the Order grow. Two of these, Sisters Brown and Anderson, were admitted by transfer cards. I was ably assisted by Sister Woodward of Lodge 115. In the evening a joint meeting with the Brothers was held. Refreshments were served by the ladies and dancing followed. On Wednesday morning we met at the hall for an hour or so. At the close of the meeting I was given a nice present. November 22d I reached Big Spring, Tex., and was met at the depot by the ladies and escorted to the home of Mrs. Emma Scogins, who was afterward elected President of Lodge 175, known as Pride of the West, which we organized in the afternoon with ten charter members. All seemed interested in the work. I spent three days with the Sisters, and

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each afternoon held meetings so that the work would be thoroughly understood. As this lodge begins its career under most favorable circumstances and with so many good ladies interested, I hope to hear some good reports from them in the near future.

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FROM L. S. 166 (*Helen E. Sheasgreen*). On November 24, 1902, the wives, mothers and sisters of members of Lodge 82 met for the purpose of organizing an auxiliary. Twenty ladies were present, two of these, however, were card members from Lodge 49, so there were eighteen charter members. Sister Henderson and others from Lodge 49 very kindly assisted in the organizing. There was a great deal of interest manifested and everything looks very favorable for a prosperous Ladies' Society. At the last meeting three new members were taken in, making a total of twenty-three. The name chosen was "Loyal" and the number is 166. The meetings will be held the second and fourth Mondays at Morgan Post Hall.

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FROM L. S. 36 (*A Member, Sayre, Pa.*) Autumn Leaf Lodge 36 has a membership of forty-two wide-awake, progressive Sisters, with eight candidates to initiate.

Last summer the boys of the B. of L. F. organized a baseball team. As they had no uniforms, the members of the Ladies' Society met and made suits for them. There were several large pieces of the red cloth left, so we decided to make a quilt of the lodge colors and send it to the Railway Men's Home for a Christmas gift. With it we sent several other useful articles. Much credit is due Sister Temple, at whose home we met to do this work. She is an earnest worker for our society and sickness alone prevents her attendance at lodge meetings.

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FROM L. S. 147 (*Annie Aylmer, San Antonio, Tex.*) I wish to say that I take great interest in the Ladies' Society. I love the Order, also the work, and I was very much surprised to see only one little letter in the December MAGAZINE. I hope before this New Year of 1903 closes that each and every member will send some news, just to show that we do appreciate the space allowed us in the MAGAZINE. It will also be a great encouragement to Sister Watts in her new position as Editor of the Ladies' Department.

I am sorry to say that our Treasurer, Sister Radetzky, has moved to Beaumont, Tex. She has been a faithful officer. However, our loss is her gain, for Mr. Radetzky now rides on the right-hand side. She still retains her membership.

Our lodge is improving each meeting. Sister Bailey of Jessamine Lodge 144 visited us and we were sorry to learn that her husband was here in the hospital, the result of a serious accident. We all wish Bro. Bailey a speedy recovery.

I wish the Editor and all readers of the MAGAZINE a happy New Year.

♦ ♦ ♦

FROM L. S. 50 (*Member, Shreveport, La.*) Our membership is small, but as Shreveport presents a large field for good and profitable work, it is to be hoped that the Sisters will redouble their efforts in behalf of our noble Society during the coming year. We have a Birthday box, also a Dime box, and from them we hope to derive pleasure as well as profit—and our "goat" is gentle and well fed.

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FROM L. S. 175 (*Secretary, Big Springs, Tex.*) Proudly I say, I am a member of the Ladies' Society. Our little lodge, Pride of the West, is a new one. We were organized November 22, 1902, by Mrs. F. E. Sells, of Cleyburne, Tex. We were well pleased with Sister Sells' work and missed her sadly in the meetings after she was called away. May success attend the Ladies' Society, also the B. of L. F.

♦ ♦ ♦

FROM L. S. 109 (*Elizabeth Ryan, Syracuse, N. Y.*) Snow Flake Lodge celebrated its first anniversary on December 19th with a grand ball. Great credit is due to Sister Gorton, chairman of the Arrangement Committee. Sister Gorton is now our worthy President. She was elected at our last meeting to succeed Sister Green, who resigned.

We were very much pleased to have Sisters Pettis, Googarty, White, Craft and Crandall of L. S. 58 with us on our first birthday. The Sisters of 58 were with us at our installation, also. The smiling face of Bro. Newcomb, Master of Lodge 120, was seen everywhere. Bro. Kelly of Lodge 213 caught the boquet very gracefully. Our sincere thanks are due to Bro. Gorton of Lodge 120 for his kindly and untiring assistance in the dining-room.

We initiated six new members last

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month and intend to keep up the good work. We have now thirty-eight members and are on the lookout for more.

♦ ♦ ♦

FROM L. S. 168 (*Chaplain, Livingstone, Mont.*) Snowy Range Lodge was organized in August, 1902, with ten charter members, ten willing workers, by our State Organizer, Caroline Sterne of Missoula, Mont. We received a visit from Brother and Sister Sterne December 10th. We had a pleasant time with them and hope they will come again. Sister Sterne is a hard and willing worker and deserves credit for her efforts in behalf of the Ladies' Society.

Official

Death Report for December.

ANNA M. KOEHLER—Lodge 129; date of death, November 18, 1902; cause, septicemia of heart. Amount of insurance, $200.

AGNES SCHMIDTT—Lodge 142; date of death, November 21, 1902; cause, sarcoma of pleural cavity. Amount of insursurance, $200.

MARGARET LAUTERBACH—Lodge 120; date of death, December 24, 1902; cause not given. Amount of insurance, $200.

♦ ♦ ♦

Quarterly Insurance Assessment.

(Second Series Numbers.)

Notice No. 1, for the Quarter Ending March 30, 1903.

GRAND LODGE LADIES' SOCIETY
OF THE
BROTHERHOOD OF LOCOMOTIVE FIREMEN.

Office of Grand Secretary and Treasurer.

BOONE, IOWA, March 1, 1903.

To all Treasurers of Subordinate Lodges:

Sisters—Assessment No. 1, for the quarter ending March 30, 1903, is hereby levied upon all members holding membership in the Insurance Department of the Society on or before March 1, 1903. You will forward to this office so as to reach her on or before the 10th day of March, 1903, the sum of sixty (60) cents from each member carrying a $200 policy and one dollar and twenty ($1.20) cents for each member carrying a $400 policy, using the two printed blanks which accompany this notice.

All remittances to be made by draft, postoffice or express money order, payable to "Grand Secretary and Treasurer, Ladies' Society, B. of L. F."

Members initiated on and after March 1, 1903, will not be liable for this assessment.

MARY E. DUBOIS,
Grand Secretary and Treasurer.

Approved:
GEORGIA M. SARGENT,
[Seal.] *Grand President.*

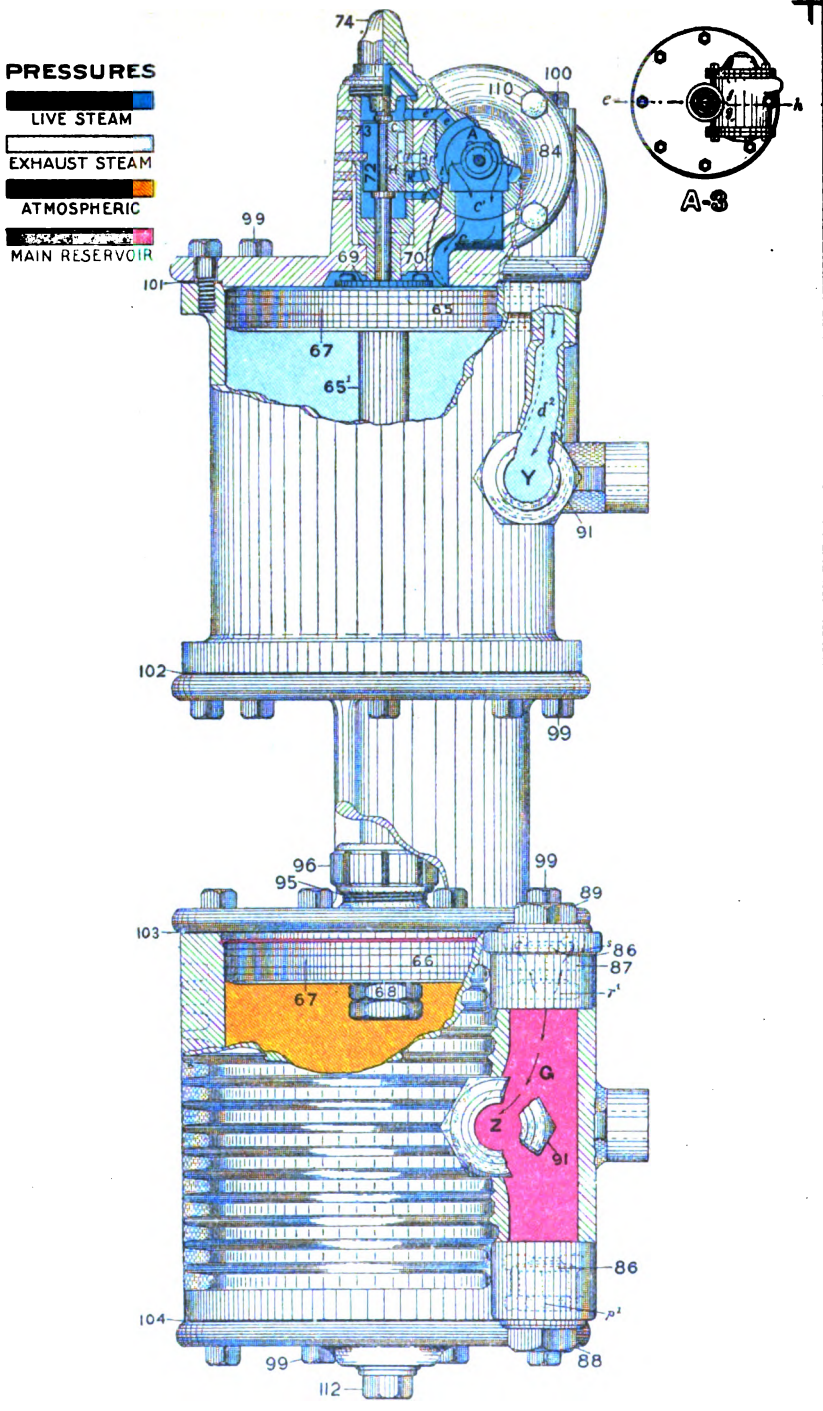
Note.—We enclose two printed blanks up which Treasurers will make returns to the Grand Lodge for the above assessments. Both statements will be filled out exactly alike and sent with returns. If all names do not appear in the printed list they will be added. If any corrections are necessary they can be made by the Treasurer. One of the printed statements, with receipt, will be returned to the Treasurer.

For the names, lodge number, cause of death, etc., of deceased sisters in the payment of whose claim this assessment is levied, see issue of THE BROTHERHOOD OF LOCOMOTIVE FIREMEN'S MAGAZINE, where detailed statement of the same will be given in department devoted to the Society.

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Locomotive Firemen's Magazine Educational Charts

WESTINGHOUSE AIR BRAKE SERIES

PLATE III—NINE AND ONE-HALF INCH PUMP (Side View)

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Entered December 4, 1902, at Indianapolis, Ind., as Second-class Matter, under act of Congress of March 3, 1879.

BROTHERHOOD OF
LOCOMOTIVE FIREMEN'S MAGAZINE
W. S. CARTER
EDITOR & MANAGER

Vol. 34, No. 3.

Subscription Price, $1.50 per year

INDIANAPOLIS, IND.
March, 1903.

Plate III—Nine-and-One-half-Inch Pump (Side View).

PLATE III of the Westinghouse Series of the Locomotive Firemen's Magazine Educational Charts is a sectional and perspective view of the exhaust side of a 9½-inch air pump. The pistons have just reached the upper ends of the cylinders on the upward stroke. The reversing rod *71* has been moved upward by the reversing plate *69* above the ascending piston, moving with it the slide valve *72*, which has caused the main valve to move to the extreme left in chamber *A*, and has permitted the steam to exhaust from the lower end of the cylinder upward through ports and passage b^2, b^1 and *b*, through the cavity under the valve *83* and downward through passage *d*, d^1 and d^2 to the exhaust pipe connected at *Y* (see Plates I, II and III). This shifting of the valve also permits live steam to pass from chamber A downward through port c^1 and passage *c* into the upper end of the cylinder, which starts the pistons on their downward stroke.

The passage of the compressed air from the upper end of the air cylinder is indicated by the arrows—passing from the cylinder through passage *r* and r^1 under the upper right-hand bushing *87*, upward and out under the seat of valve *86*, back and downward through passage *G* and to the discharge pipe *Z* leading to the main reservoir.

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Train Dispatching and Railway Collisions.

The frequency of train collisions during the past few months, and the consequent loss of many lives, has given occasion to a discussion in the columns of the technical and popular press that has created a desire to turn from old methods and adopt something new. The British writers protest that the American system of train dispatching is defective; that the many accidents and appalling loss of lives is "only what might be expected from a system that depends entirely upon man's memory." The Railway Gazette, a leading authority on such matters, is constrained to say: "We have had occasion to remark sometimes that the American dispatching system' of managing trains on single track is inferior to the block system. This is not news; but like the great truths of religion and morals it has to be stated often or folks stop thinking about it. Just now some astute railroad men are coming to put the case even stronger; are even calling the dispatching system a failure."

The Gazette then calls attention to the many accidents reported in the Accident Bulletins issued by the Interstate Commerce Commission and refers specifically to a recent wreck occasioned by the forgetfulness or neglect, or misunderstanding of an operator.

The block system of protecting signals makes it possible to dispatch trains with a greater degree of safety, but even with the protection of semaphores disastrous collisions occur. To paraphrase a familiar saying, "Eternal vigilance is the price of safety" in the movement of trains, and it is a well-known fact that nothing makes vigilance less "eternal" than the absence of danger, or the presence of supposed protection. Men in train service on roads where a block system has been established are less vigi-

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lant than on roads where every man knows that his fate depends upon himself. When men are exhausted from long hours of service, or from a neglect to take rest when the opportunity was presented. it is easier to pass a danger signal unnoticed than to forget a train-order. A moment's nap with the block system sometimes means a disastrous wreck while the same "resting of the eyes" where the movement of trains are regulated entirely by orders seldom results in harm.

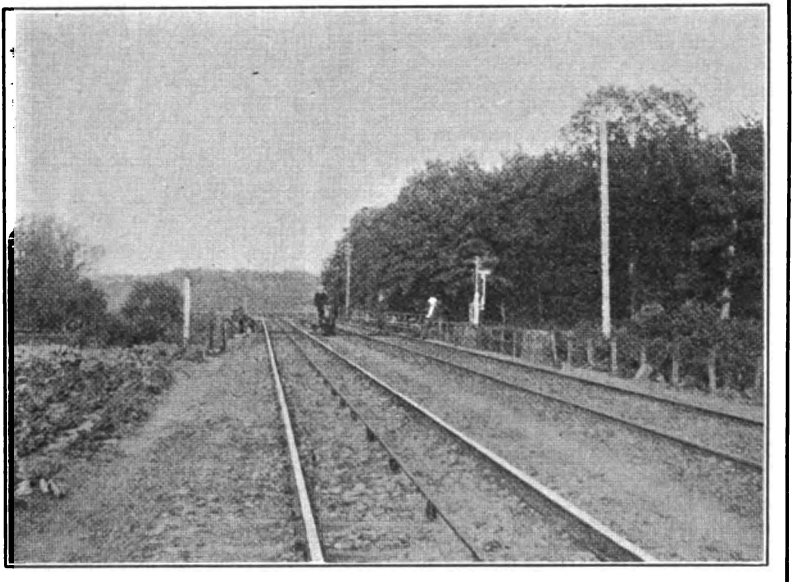
The Jersey Central wreck on the evening of January 27th, near Cranford, N. J., is a mysterious affair. The Philadelphia express crashed into the rear end of the Easton express notwithstanding that the latter was "protected" by two semaphores and a flagman with his red light. More than twenty passengers in the telescoped coaches were crushed or burned to death, as was also the engineer on the Philadelphia train; while the fireman and many passengers were injured. The colliding train was ascending a slight grade and had an unobstructed view for miles. The train passed the "distant" signal 3,000 feet and the "home" signal 900 feet before the crash came, and yet it is said that both of these signals were in proper position to protect the Easton train, which had stopped to cool a hot box.

Many have been the comments upon the cause of this wreck; some based upon technical knowledge and others simply the wild guesses of the newspaper reporters. The true cause will probably never be ascertained. The Railway World says it "is clearly one of those inexplicable instances of the failure of the inevitable human element in the elaborate and apparently perfect system of provision against every contingency that might occasion loss of life. Just why Engineer Davis should have disregarded the signals that were set to warn him against his own destruction, as well as of the danger to the train in his charge, will probably remain forever undiscovered. All that can ever be said is that in the mechanically perfect system for the protection of the lives of passengers which was in use there was of necessity one human link, and that no provision could absolutely guarantee this one element against failure. In the law of chance there was one remote possibility in millions that precisely the psychological lapse which did happen would occur; no method could guard against it, and no expenditure, however great, could eliminate it, or it would have been unhesitatingly and promptly made. It is well to record the fact, however, that every contrivance which modern ingenuity has devised for the safety of the traveling public, and every means that experience has shown to be useful for its protection, has been provided by the railway. * * * There can be no present answer to the psychological problem which this extraordinary and terrible lapse affords, except that beyond a certain point the utmost caution and mechanical perfection will not avail. The human factor must still play some small part, at least, in the most precise and elaborate system, and no one can foresee all of its future operations. Yet, happily, the vigorous hands which grasp the throttles on the thousands of passenger trains that daily carry their freight of American humanity are controlled by nerves of steel and ordered by cool brains, whose action is in but the slightest danger of becoming in any degree abnormal."

The Railroad Gazette expresses the following editorial opinion: "The rear collision of passenger trains which killed twenty or more passengers at Cranford, N. J., lately, is distressing enough in itself; but to railroad men it comes with particular significance because it is the fourth of a series of such collisions within a few months, all occurring on lines worked by the block system: Menlo Park, N. J., in October; Quaker Valley, Pa., in December; Ada, O., in January, and now Cranford. At Ada the block signaling was nonautomatic, but at the other three places the signaling equipment (automatic) was complete, distant signals being provided, and there being no question about the proper location and visibility of the signals. The discussion of the causes of this last collision by the public authorities, so far as there is any discussion, and also, perhaps, that by the railroad officers, will probably deal, as in similar cases before, with the usual questions about the difficulty of seeing signals (the engine of the Philadelphia express was leaking a good deal of steam), the lack of strength in the wrecked cars, the reason why the train was not traveling on its regular track, the promptness or lack of promptness in getting fire engines, and other well-known details. But it is important to bear in mind that these are secondary matters. All of them are important, but they should not be allowed to obscure the main question. Not even the question of brake power—a de-

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ficiency in which may at any time be the second of two causes, almost equally important, of a disastrous collision—should blind any one to the fact that the observance of the signals is the main issue. The engineman in the Cranford case is reported fatally injured. If he dies, that settles *some* of the questions that otherwise would weigh on the superintendent's mind. But his death does not preclude inquiry as to his character, temperament and training. Is it a fact that enginemen on very fast trains take risks where with an ordinary train more caution would be observed? This is not a trivial question; repeated collisions have made it a serious one. What about the rule requiring firemen to observe fixed signals and shout them to the engineman? It ought to be declared a good rule and adopted, or an impractical or useless one, and definitely thrown aside. If the fireman is not to aid in the lookout, an added importance attaches to the engineman's function. If the fireman is to aid when it is convenient to do so (that is, partially), the trainmaster has a duty to see that, relying on two stools, he does not fall to the ground. The question of flagging also comes in for investigation. Do enginemen deliberately maintain speed past cautionary signals, depending on the flagman to prevent disastrous results from such recklessness? The collision records indicate that it would be a good use of money to spend thousands of dollars to test this point. All these questions are crying for attention. We are increasing the use of the block system to cure the evils of the time interval and flag; but our English cousins will begin to wonder whether we have men competent to operate any system. And Englishmen will not be the only persons who can ask unpleasant questions; the men who advocate the use of automatic apparatus to apply brakes and shut off steam will find increasing favor with legislatures and the public."



NEW RAILWAY SAFETY DEVICE

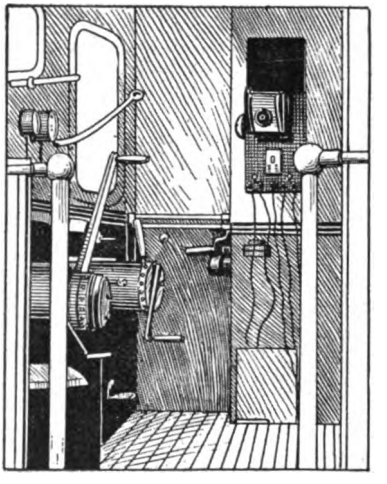
Prepared track, showing third rail

The journal last quoted in another article comments upon the recommendation of the New York Railroad Commissioner, that all trainmen on electric interurban railways be subjected to an examination on rules at least once each month, and says: "This decision or opinion of the inspector is of interest to railroad superintendents and trainmasters generally. Such frequency is unheard of, so far as we know, in steam railroad practice, and yet practice is not so uniform or so well settled that any one would be willing to

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say offhand that once a month is too often. Indeed, as the majority of superintendents appear to have anything but settled views as to the frequency with which they should examine their men; and if examination is necessary at all after a man is once accepted for a given position, it would seem highly desirable to find out whether a more definite theory can not be formulated for use as a working basis. From the persistent way in which electric railroad men have tried to believe that they can run miles as fast as the steam railroads run them, but without adopting the expensive methods and safeguards of high speed lines, and in view of the known methods of managing the personnel of electric roads, one may surmise that frequent catechising is deemed necessary in the electric service, because new men are taken on more frequently, and because the old men are not so good at studying and comprehending rules as are conductors and enginemen of the old school. This, however, raises the question whether reiteration is the right remedy for a lack of proficiency; whether the true need is not a better grade of men. In some things much better results may be obtained from teaching a hundred-dollar man once in two years than a fifty-dollar man once a month.

"The circular issued by the American Railway Association on examinations of railroad employes, the replies to which were published last April, seems to have studiously avoided the question of examination on knowledge of the rules, though full attention was given to the question of how many different methods are employed to test a man's "muscle." It is a matter of common knowledge, however, that practice varies widely. In the early days of the standard code some roads started out bravely to examine all the men on all the rules. But this was a tedious process, and with well-qualified men it often seemed a waste of time. Men who in the first half of the rules showed sufficient knowledge and a high degree of intelligence were not compelled to go through the last half. This idea was carried farther in some cases than in others, but it had its effect everywhere. The frequency of examinations was modified in the same way. Plans for holding "schools" semiannually or quarterly were modified to annual or biennial intervals, if the superintendent had some reason for thinking that his men were not in special need of particular instruction. As a result of this tendency—a tendency often strengthened by changes in administration, or when a superintendent found himself burdened with new cares in some other direction—we now hear of superintendents who, according to their own statements call their men in whenever it is thought proper to do so, but without any fixed plan; and who do not thoroughly test the men's knowledge of the rules; they only question on a few rules here and there, with a view to seeing whether the man has a good general intelligence and experience. By the answers given



NEW RAILWAY SAFETY DEVICE

Telephone, alarm bell and red light in engine cab

concerning one rule the questioner judges the man's ability to deal with other equally difficult precepts. This is good as far as it goes, but is it enough? * * * Why should we re-examine men who have both experience and good records? The argument for so doing is based largely on the fact that a two-line rule, coming up to be acted on only once in a month or a year, may be the vital link in a safety-chain that protects lives by preventing collisions. The good men—whose records are perfect—are the ones who re-examine themselves on such rules. The question is as to what, if anything, can be done to induce all the men to form this habit; to form the habits of caution, study and reflection which every old and competent railroader recognizes as necessary."

The "Staff" system, which was described in the October, 1901, Magazine, has found favor where installed. The Santa Fe has operated this system over

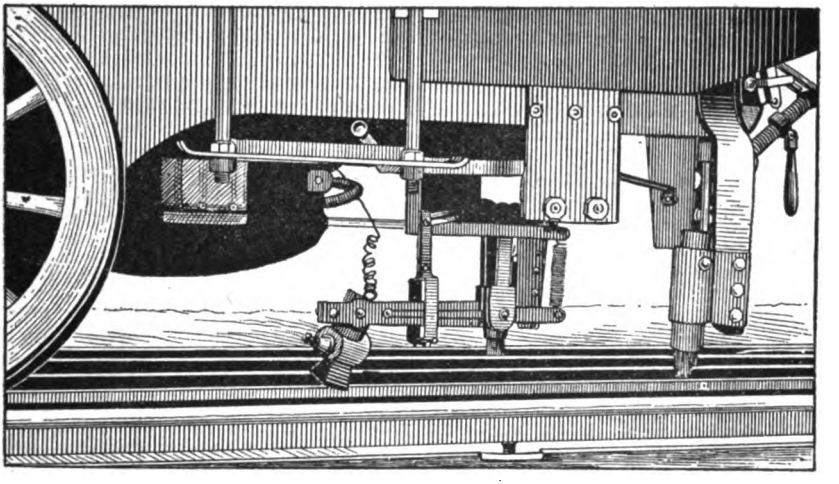
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Raton Pass for more than a year and has found it satisfactory for the movement of as many as sixty trains daily over a single track. In addition to its features of safety it is said that as much as one hour's time is saved for each freight train.

Consul-General Mason reports a new safety device from Berlin, Germany, which he describes and illustrates as follows:

"Midway between the rails is laid a light third rail of the ordinary T pattern, the joints of which are so connected as to form a continuous conductor. Midway under the forward part of the engine is hung the working instrument, an electrical apparatus inclosed in a square case or jacket occupying a cubic foot of space. The instrument is connected with a contact shoe, which slides along the third rail, and by wires with a telephone and electric alarm bell in the cab of the engine driver, and a red incandescent lamp which is lighted by the same impulse that rouses the alarm bell into action. A further improvement of the device sets the electric brakes on the engine or entire train simultaneously with the alarm signal which sounds the bell and lights the lamp. The apparatus is so adjusted and arranged that the engineer can at any moment, by touching a lever, satisfy himself that it is in full working condition.

"The tests on November 12th were conducted on the main line from Frankfort to Hanau, between the stations Sachsenhausen and Goldstein, and a translation of the official report will illustrate concisely the working of the apparatus. Two locomotives, numbered respectively 290 and 1420, had been equipped with the new device and the experiments proceeded as follows: Engine 290, drawing a special train and approaching Sachsenhausen at full speed, received the danger signal and came to a full stop; the driver of 290 then asked by telephone the cause of the signal and received from the keeper of a grade crossing, half a mile in front, word that a wagon had broken down in crossing the track and obstructed the line.



NEW RAILWAY SAFETY DEVICE

Third rail and contact shoe

After ten minutes' wait, the engineer of 290 received word by telephone that the obstruction had been cleared away and thereupon resumed his trip.

"A mile farther on, the signal on 290 again sounded, and the driver was informed, by telephone as before, that the semaphore round a curve and more than half a mile distant was set at 'halt.' Thereupon engine 290 slowed down and proceeded cautiously, sounding its whistle at short intervals, the telephone bell in the driver's cab ringing continuously until the curve was rounded, when the ringing ceased, notifying the engineer that the semaphore had changed to 'track clear.' Thereupon 290 resumed full speed.

"In the tests to prevent collision, engine 1420 came up rapidly from behind and on the same track as 290, which had

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slowed down and was proceeding cautiously in consequence of reported danger in front. The moment that 1420 came within 1,000 meters (1,093 yards) of 290, the signal on both engines began to ring and their red lights glow. Thereupon 1420 halted, the driver inquired of 290 in front the cause of the alarm, and a complete understanding between the two trains was immediately established. An important point in this connection is that in practice the same warning signal is sounded upon every engine equipped with the apparatus which is on the same track and within the prescribed radius—a kilometer or a mile, as the case may be—from the engine and train which cause the obstruction. If a semaphore be falsely set at safety, the train may run past it into a block in which another engine is halted or moving with perfect security that warning will be given in ample time to prevent a collision under any and all conditions of darkness, fog, storm, or mistaken instructions."

When we consider the fallibility of the human mind it seems almost incredible that the American system of train dispatching could have been operated as extensively as it has been without a far greater number of accidents. A single mistake or lapse of memory of the dispatcher, or of the operator, or of the engineer, usually results in damage to property or death to persons, and often to both. As long as the conductor's post of duty is elsewhere than on the engine he is an unimportant factor. The fireman, if he were vested with the responsibility and paid for that increased service, is the only man on the train that can be of much service when the engineer fails in his duty. Of course, *after* an engineer has run by a meeting point the conductor can stop the train, but the damage is usually done before it can be averted. That the time is ripe for some improvements in methods of moving trains is plainly evident. Just as the old hand brakes and link-and-pin couplers had to go so will antiquated methods of dispatching trains have to give way before public opinion, but just what will be substituted for the frailties of human mind remains to be seen.

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Government Ownership of Railways.

There is a popular demand among working people in general for the government ownership of railways, which demand is based upon the supposition that railway employes would enjoy greater privileges and better wages than when working for private corporations or "trusts." This demand is less pronounced among railway employes, however, than among others; in fact, railway employes are in doubt as to the desirability of working for "Uncle Sam."

The "black list" is the most hated of all the schemes invented by railway officials to injure railway workers, but no corporation is as persistent in the enforcement of a "black list" as the Government of the United States. As narrow as are the limitations, discharged railroad men do have a chance to secure employment on other roads, but once the railways belong to the Government that chance is gone forever.

The "spotter" is detested by all railway employes, and railway officials are being convinced that evidence secured against their employes through the agency of spotters is very unreliable. A man who will betray his fellow-workers for "a piece of silver" is no longer countenanced by most reputable railway officials. The Government prides itself upon its perfected spotter system.

Not so many years ago "favoritism" governed preferment in railway promotions and assignments of work. A profitable patron of a railway could secure desirable positions for his friends simply by making the request. Department officials were accustomed to favor their personal friends in the assignment of preferred runs and in promotions, and when they assumed a new position it was often that they "made room" for their favorites who had remained on the road from whence these officials came. The influence of the railway labor organizations has eliminated favoritism from railway train service. Every man now has the same chance for advancement; but with Government ownership the railway employe without "political pull" would find himself handicapped.

Railway officials are selected from the ranks; from men who know their business. All positions that are "official" in their capacity in the service of the Government are filled by party henchmen. It is seldom that a postmaster of an important office is ever fitted for the actual work of his office. He is always a veteran partisan worker, and never does he ask for the position because of his ability as a postmaster, but because of his service for the political party in power. Congress having cognizance of this fact makes pro-

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visions for the technical ignorance of the postmaster by creating the position of "assistant postmaster," which is usually filled by a man who performs all of the duties of the postmaster, and at less than half the postmaster's salary. Imagine a division superintendent who had gained his position by "colonizing" voters in some close election district! What of a general manager whose contribution to the campaign fund had secured him his appointment! Brass buttons would shine with no less luster upon the coat of a passenger conductor whose father was a congressman!

In Australia the Government has installed a railway spotter system that is detested by officials and employes alike. Mr. Bent, the Railway Commissioner, believes in spotters as much as does the United States Postoffice Department. In speaking of them the Railway Standard, of Melbourne, says: "In the appointment of these gentlemen every officer of the department, from the highest to the lowest, seems to have just cause of complaint. Perhaps the leading officers of the railways have even more reason to complain than the men. The latter can not fairly object, and they are not likely to object, to the most thorough inspection of their work; and they are injured only in that they are made accountable to irresponsible individuals—the creatures of a man who is here today and gone tomorrow—and not to their permanent superiors in the department. Their appointment under the circumstances is in itself evidence of suspicion, and, though they may be fair-minded men, they can not but be influenced by the fact that Mr. Bent will be quite disappointed if they do not find out a few faults or abuses somewhere to justify their existence. If they report on anyone adversely, as Mr. Bent himself has said, there will be no appeal. The men would be scarcely human if they liked this method of doing things, and complaints are not to be wondered at."

Nor is this all. It is now proposed, and pressed with some chance of adoption, that all "civil servants" be disfranchised. In opposition to this degrading of railway employes the Railway Standard says: "If it were true that men in the service of the state threaten the best interests of the state by their political actions, and if it were true that their power for evil would be removed by Mr. Irvine's proposal, there would be some justification or excuse for it. But neither of these things is true. The civil servants and the railway men will sometimes, stirred by injustice, or the feeling of injustice, use their political power to sweep a government out of office, or to resist attacks upon themselves. The fall of the Patterson ministry some years ago is pointed to by the apologists of Mr. Irvine's scheme as a shocking example of what may be effected by the civil servants' vote, and true it is that when the state servants said Patterson would go, at the very next election he went. * * * If any unjust attack is made upon their privilege or pay, their tradesmen—and their creditors—as well as their friends and relatives, will be up in arms to resent it. The removal of the public servant's own name from the electoral roll will have the smallest effect, except in a few special constituencies. If the public is with the service in any dispute with the government, the former will still carry the day; if the contrary happens, it will be defeated just as in the past. The only difference under the new regime will be a constant feeling of injury on the part of public servants, which will tend to the exaggeration of small quarrels, and the existence of special members whose presence will be a constant reminder of those quarrels, and who must necessarily in all of them be fierce partisans."

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American River and Canal Commerce.

Statistical returns of domestic trade movements on rivers and canals in the United States have been made the subject of monthly reports in the Summary of Internal Commerce, issued by the Treasury Bureau of Statistics for the year 1902. A large proportion of this information was gathered from the engineers in charge of river and harbor improvements under the auspices of the War Department. In other cases State authorities and transportation companies have furnished data from which the results have been tabulated.

Among the streams of the United States the traffic on the Monongahela River is possibly the heaviest, owing to the prominence of the coal trade. For the twelve months ending with December, 1902, the total coal traffic passing through Lock No. 3, in addition to the quantity mined in the first and second pools, was reported as amounting to 9,109,002 tons. This may be compared with the total amount of coal shipped from domestic ports in the Great Lakes to other domestic ports

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during the year 1902, amounting to 9,632,866 net tons. The total Monongahela freight movement, in both directions, reached a grand total of 9,686,686 tons in 1902.

The point of largest recorded traffic on the Ohio, after leaving Pittsburg, is that of Davis Island Dam, a short distance below Pittsburg. This dam, both in construction and in operation, is one of the country's noteworthy achievements of engineering talent. It affords the coal and iron trade of this portion of the country deep-water navigation on which to accumulate the products of the mines and industries to be floated down the Ohio River whenever a sufficient depth of water is available. The total tonnage passing this point during 1902, as reported by the engineer in charge, was 3,873,952 tons. The month of the largest business was July, when 1,123,990 tons were shipped.

Another point, at which traffic on the Ohio is gauged, is at Louisville, Ky. Here the Ohio River trade passes either through the locks of the Louisville and Portland Canal, or over the falls of the Ohio, in case that the water is of sufficient depth; so that the movement of these two channels gives the total traffic at this point for a given period. For the twelve months ending with December, 1902, the traffic through the canal amounted to 1,234,422 tons, and that over the falls of the Ohio to 763,551 tons, making a grand total of 1,997,973 tons.

Next in importance to the traffic of the Monongahela and Ohio Rivers is that of the Great Kanawha River, consisting primarily of coal and lumber. During the year 1902 the total tonnage moved through Lock No. 11 on this stream was 977,101 tons. Next in importance is Green River, Kentucky, through Lock No. 1 of which 392,847 tons passed. The Big Sandy River, in the same locality, is credited with 251,511 tons passing Lock No. 1. The Little Kanawha had a total freight tonnage of 69,706 tons for the same period. The Des Moines (Ia.) Rapids Canal carried 55,731 tons. The canal of the Cascades in Oregon reported 25,308 tons of traffic. The Barren River, Kentucky, 41,231 tons through Lock No. 1. The Black Warrior River, Alabama, through Lock No. 3, had a tonnage of 16,105 tons, and the Coosa River, of the same State, through Lock No. 3, 3,226 tons, mostly lumber in both cases. On the Kentucky River, Lock No 4, 48,665 tons of freight were shipped, and on the Muskingum River, Lock No. 1, 37,380 tons in 1902.

The tonnage moved through the New York State canals is reported by the State superintendent of public works as amounting to 3,179,362 tons in 1902. Of this amount 2,225,986 tons moved eastward and 953,376 tons westward, showing that the eastward tonnage is about two-and-a-half times the westward tonnage. For the year 1901 the total tonnage for an equal season ending with November was 3,111,444 tons, of which 2,876,909 tons moved eastward and 1,066,085 tons westward. Coal shipments on the Chesapeake and Ohio Canal were 192,535 tons in 1902, compared with 229,393 tons in 1901.

The above traffic movements may be contrasted with those of the Sault Ste Marie canals, through which a freight tonnage of 35,961,146 net tons passed in the season of 1902, and also with the Portage Lake ship canals of Michigan, on which cargo of 2,636,189 net tons passed in the same season. The tonnage movement through the Chesapeake and Delaware Canal, as reported by the operating company, has been given for only the last four months of 1902, as 205,382 net tons, with a vessel movement of 1,382 vessels.

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Electricity Encroaching Upon Steam.

If we heed the words of a pamphlet recently published by Westinghouse, Kerr & Co., one is almost frightened at the encroachment of electric railways upon the steam railways of certain parts of the country. Of course, it will be a long time before electricity will be used successfully on trunk lines, but that local competition will deprive many a railroad man of employment when the present prosperity wave subsides seems now possible. It was only a few years ago that engineers and firemen on the Manhattan Elevated ridiculed the idea of electricity ever superseding steam on that road; but it did, and the illustration published in this issue graphically tells the story of how successfully the job was done. The following is what the pamphlet referred to says:

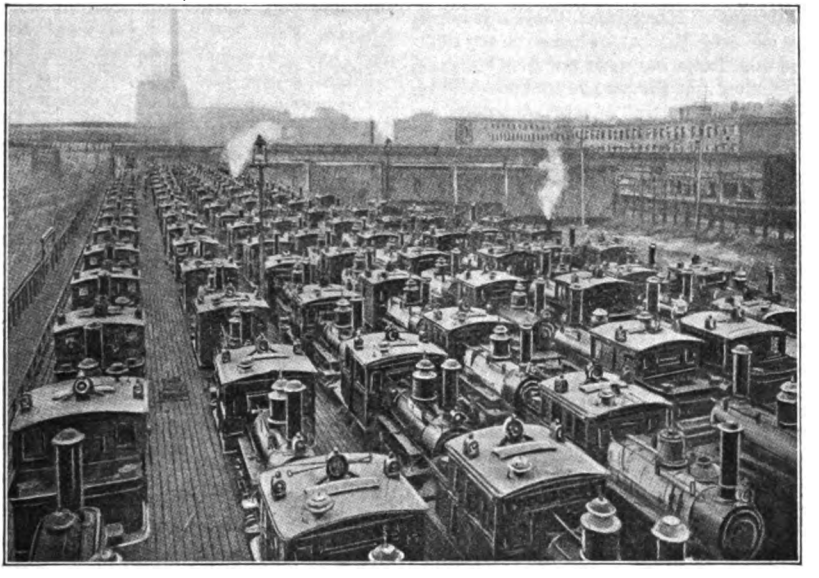
"In no part of the United States has the development of urban and interconnecting interurban railway systems taken place with such rapidity as in the district of southern Michigan, lying immediately between the extremities of Lake Huron and Lake Erie. These systems

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naturally center in Detroit as the industrial and business metropolis of the State. While the present steam service is relied upon entirely for cross-country work, the rapidly expanding electric systems are more and more encroaching upon this heretofore exclusive field, and a few years of further progress will serve to connect not only the largest of the Michigan cities by interurban electric systems, but also these industrial centers with similar centers situated in neighboring States. It may also not be improper to predict long-distance work for the immediate future. Already one system is closing the gaps in the cross-State line from Detroit to Grand Rapids and the eastern shore of Lake Michigan. There will shortly exist an uninterrupted electric service from Port Huron to Toledo, a distance of approximately 100 miles. Another system extends to Cleveland—140 miles further from Toledo. A fourth system now forms the major part of a cross-State line, from Toledo to Cincinnati, a distance of 215 miles, the remainder of which is now under projection, and when constructed, will complete a through service from Cleveland to Port Huron, aggregating approximately 355 miles.

"The majority of these roads are equipped with permanent way material worthy of any steam road, with cars superbly appointed where conditions of service require these refinements, and with power distributing systems commensurate with the requirements of high schedule speed, frequent stops, heavy grades and other local characteristics. Each new undertaking has surpassed its predecessor in the completeness of its equipment and the character of the service rendered, all of which is made possible by the embodiment of the most advanced engineering ideas and talent in the design, construction and operation of the road.

"Time was when an electric road might be, as it were, thrown together by some railroad man experienced in all but that invaluable knowledge of the successful application of electricity, but who, by relying upon standard apparatus and the hard-earned experience of others, had succeeded in operating his cars when conditions were favorable, trusting to providence and his engineer to "keep the old thing going," when unfavorable. It is needless to say that such service would not now be tolerated by any progressive community, and in addition to low fares and handsomely appointed cars, an interurban road must be prepared to render a service of great frequency, high schedule speed and reliability during all conditions, both of climate and patronage. Mail, express and freight service are also required in many localities.



DISCARDED LOCOMOTIVES OF THE MANHATTAN ELEVATED RAILWAY

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Accident Bulletin No. 5.

Accident Bulletin No. 5, issued by the Interstate Commerce Commission, shows that the number of persons killed in train accidents during the months of July, August and September, 1902, as shown in reports made by the railroad companies to the Interstate Commerce Commission, under the "accident law" of March 3, 1901, was 263, and of injured 2,613. Accidents of other kinds, including those sustained by employes while at work, and by passengers in getting on or off the cars, etc., bring the total number of casualties up to 12,007 (845 killed and 11,162 injured). Many items show a marked increase over the same items in the last preceding bulletin, and many, also, are larger than in the same quarter of the preceding year—the quarter reported in Accident Bulletin No. 1. The present record includes a derailment in which 21 passengers were killed, and a collision of work trains in which 13 employes were killed; but, except in connection with these two items, there is no apparent reason for an increase in the totals, other than the well-known fact that during the three months now under consideration the traffic of a large majority of the railroads has been heavier than ever before. It is a matter of common observation that new men have been engaged for service in train and yard work in larger proportionate numbers than for many years before.

The total number of collisions and derailments was 2,488 (1434 collisions and 1,014 derailments), of which 51 collisions and 92 derailments affected passenger trains. The damage to cars, engines and roadway by these accidents amounted to $2,180,512, namely: July, $716,164; August, $757,663; September, $715,685. There were, among the 69 accidents, 5 collisions due to errors of train dispatchers or dispatchers' assistants; damage, $28,155; killed, 3; injured, 15; 3 derailments in consequence of malicious misplacement of switches or other mischief; damage, $22,500; killed, 3; injured, 16; and one collision of freight trains due to careless conduct of men who slept on duty. In this last named case a freight train was sidetracked to wait for another train, and the whole of the crew, having been on duty twenty-four hours, fell asleep. On awakening, these men thought, or assumed, that the two trains which they were expecting had passed them, when, in fact, one of the two was yet to come. In one collision, due apparently to a train breaking in two, a brakeman was killed whose age was reported at only 18 years.

The deaths each quarter, and also a considerable share of the accidents are due to defective uncoupling mechanism and to the fact that engines and tenders are not in all cases equipped with automatic couplers.

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*Development of Niagara Power.**

The most important development of the year in this consular district is the enlarged production of electric power at Niagara Falls. This has been in use at Niagara Falls, N. Y., for several years past, and the demand for this cheap and constant power has been so urgent that it has been impossible for the power company to keep pace with it. The original development of 50,000 horsepower at Niagara Falls, N. Y., was utilized some time ago, and the company has been working night and day to double the capacity of the plant, the tunnel providing for a discharge of water that would develop 100,000 horsepower. The second shaft has been completed, the machinery has been installed, and within a few months the full capacity of the Niagara Falls, N. Y., plant will be at the service of the Niagara frontier.

Realizing that the plant on the New York side of the cataract would only suffice for a short period, the power company commenced operations on the Canadian side of the river in August of last year. The work has been pushed rapidly, and it is expected that by next August 50,000 horsepower will be available. Already, the demand is so great that last week the power company let a contract for extending the wheel pit at once, so as to develop 110,000 horsepower instead of the 50,000 first contemplated. The two companies are practically identical as to stockholders, the Canadian company being officially designated as the Canadian Niagara Power Company.

A radical departure from the installation on the New York side of the river is the utilization of dynamos of 10,000 horsepower each instead of the 5,000 units that were installed in the original power house. The 5,000 horsepower dynamos were such mammoth experiments that it was feared they would prove impracticable, but now they are to be succeeded by dynamos of twice their capacity. Quite

*From report of Consul Brush of Niagara Falls, Ont.

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a marked saving is effected in the construction of a 10,000-horsepower dynamo over two of 5,000 each.

The fact that cheap Niagara power is going to do all that was claimed for it in the way of attracting industrial concerns to the Niagara frontier is being so thoroughly demonstrated that a second company—the Ontario Power Company—has secured rights from the Canadian Government. The development of its plant commenced last April, and 50,000 horsepower will be the initial product, but this will be increased to 150,000 horsepower. Instead of being carried in an underground tunnel, the water is directed into flumes, carried to the brink of the Niagara gorge, and then dropped into the river through penstocks, which develop the power.

These two companies are backed almost exclusively by United States capital. A third company, which claims to be wholly Canadian, has applied to the Government for the privilege of developing 100,000 horsepower near the two plants now under construction. A full hearing of all the parties interested was given by the Government on Friday, December 19th, at Toronto, and a decision will be announced shortly. As special stress is laid on the fact that a Canadian company should have preferential rights, it is believed that the petition will be granted. The Canadian Government exacts in all cases that 50 per cent. of the power developed must be provided to Canadian consumers if called for, the balance will be exported to the United States.

While millions of dollars are being expended in developing these various power plants, the revenue will be enormous. Comparatively little labor is required, once the energy of Niagara is under control. When the 350,000 horsepower now in process of development is placed on the market, the gross income of the power companies will be in the neighborhood of $7,000,000 per year. This is figuring the price at $20 per horsepower a year, which is somewhat lower than the present average rate. As this provides constant power every day of the year, twenty-four hours every day, with thorough cleanliness, little fire or accident insurance, no expensive equipment for generating steam with its heavy annual wear and tear, no engineers or firemen—simply the turning of a lever—it is seen that for many lines of industry Niagara electric power presents remarkable inducements.

The industrial growth of the Niagara frontier in the past few years has been marvelous. It is prophesied that within ten years 1,000,000 horsepower will be in course of development. Up to the present time, the effect on the volume of water passing over the falls is not noticeable, even with the most careful measurements. A short time since, for the purpose of inspection, all the water was shut off from power development for a number of hours. Competent men were stationed at different points on the river and at the brink of the falls to measure the difference in the river level when the water producing 100,000 horsepower was cut off. The men were unanimous in their reports that they could not detect the slightest variation. A heavy wind blowing up or down Lake Erie will raise or lower the Niagara River several feet, but only those who are well acquainted with it will notice any special difference in the discharge at the cataract. The main change is in the middle channel of the river and is principally shown in the rate of discharge, rather than the raising or lowering of the river.

My Ship

I wonder when the day will come
For which I've waited long,
When all my sorrowing is done
And life is one glad song,
When every debt is off the slate,
My promises made true,
When I'll be good and wise and great
And have a cent or two;
When care and grief have passed away
And peace and joy begin:
Upon the glad and happy day
When my fair ship comes in.

I sit beside the restless sea
And list the billows roar,
To wonder when they'll bring to me
The bliss I'm waiting for;
But as I call to mind how fate
Pursues her fickle way,
And usually brings too late
The gifts for which we pray,
I sigh and bow my weary head
To hide my deep chagrin
I know I'll be a long time dead
When that old ship comes in.

—John Wallis Clearman, in Life.

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Odds and Ends

American Railroad Men in Mexico.—The Kansas City (Mo.) Star of January 18, 1903, has the following:

"The movement to investigate the condition of American railroad men in Mexico, under the old Spanish law that causes the imprisonment of train crews when fatal accidents occur, was officially indorsed by the locomotive engineers at a meeting of their lodge in this city last night. James Corrigan was formally appointed a member of the committee representing the different railway orders to collect funds for the purpose of ascertaining the facts regarding the conditions complained of in Mexico and taking steps to remedy them.

"The meeting was addressed by Harry H. Adams, whose story of ill-usage in Mexico has been told in these columns. Knowing the conditions there, Adams has been devoting his time to arousing railroad men in this country to action in behalf of their countrymen who have been victims of oppression in Old Mexico. Many of the engineers present have friends who have suffered, and they expressed themselves in emphatic terms regarding the necessity for prompt measures to influence a change in the law.

"A representative of the brakemen was present and invited Adams to address a meeting of the Order of Railway Trainmen at Sixth and Minnesota avenue, in Kansas City, Kan., this afternoon.

"The secretary of the committee has headquarters in the office of Mr. Estill, 512 New York Life Building. There assurances of hearty sympathy are received daily in addition to contributions to the fund.

"Regarding the truth of the statements that Americans are discriminated against in the enforcement of the law when Mexicans are killed in railway accidents, many engineers say they know the circumstances to be true. They have received letters from friends there in verification of the charges.

"If the criminal laws of Mexico that pertain to accidents and wrecks on railways were in vogue in the United States much of the railway traffic of the country would be at a standstill at all times. The Mexican criminal law affecting railways is a part of the old Spanish code, or custom, handed down from the mediaeval ages, which, as it is applied in these days of enlightenment, makes the train crew directly responsible for the death or injury of any Mexican killed by a train in that country. No matter if an American railway employe be absolutely blameless in reference to the wreck, and even if he were crushed and mangled himself, he is presumed to be guilty, and the Mexican law requires that he be arrested and put in jail pending an investigation.

"Such is the practical working of this old Spanish law as it has been reported in this country during the last two decades. As a result of it several American locomotive engineers, and other railway employes who went to Mexico to work on the railroads there are now confined in Mexican dungeons, it is said. The stories of the harshness and cruelties of the law as told by American railroad men who have either fled or returned from Mexico seemed almost incredible. For years Americans have been thrown into an adobe or stone jail because the train on which they were working was wrecked.

"Yet, to the Mexicans the law seems just. They argue that if a wreck occurs it surely could not have been brought about by any of the high and wealthy Mexican officials of the road who were distant a hundred or maybe five hundred miles; and surely the wreck was not likely to have been caused by a visitation of the wrath of God. Hence, the American engineer in charge of the train is most likely responsible, and he is forthwith cast into prison. The complaint has come from the Americas, because nearly all of the locomotives in service in Mexico have been and are run by Americans. The Mexicans who justify their law aver that the law is applied to Americans and Mexicans alike; but even if this be true the workings of the law bring the greatest hardship to the Americans, because they hold the responsible positions.

"The Mexican authorities after an accident or wreck which caused death or injury are prompt in their arrest of Americans in charge of the train. It has been charged many times that Americans were imprisoned for long terms without ever having been given a trial. Others were released, after a week, a month, or perhaps several months, without having had a chance to give their testimony and without any pretense of a trial. So fearful are American railway employes of the

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harsh law and the Mexican prisons that oftentimes after an accident or wreck they would flee for the border, suffering terrible hardships in their efforts to escape over the mountains.

"A provision of the law requires that any member of the train crew who may have been injured in a wreck, may not be removed, may not receive medical or surgical aid, may not even be touched by any person until the arrival of the judge of the district. When the judge arrives his first duty is to make a searching inquiry into the cause and the manner of the wreck. Yet, under this barbarous law, a wounded American engineer, perhaps with crushed and broken limbs, must await the arrival of the district magistrate. The law first and medical aid afterwards.

"The movement recently started in Kansas City to make a searching investigation into the laws of Mexico as they affect American railway employes is not contemplated to be carried on in an aggressive way, but in a spirit of strict and impartial inquiry. For years it was charged that Americans were cast in foul prisons without trial, and the present movement, organized by representatives of the four great orders of American railway employes, is to first ascertain if the charges are true. A secret commission will be sent to Mexico, whose object will be to learn what the actual conditions have been and are still. If this committee finds that the conditions are as barbarous as has been represented, then the question of relief will be taken up. If American railway men are found unjustly incarcerated in Mexican prisons efforts will be made to secure their speedy relief.

"At present the movement is being advanced by representatives of the four great railway brotherhoods, who have a combined membership of 600,000. The State Department at Washington has several times sought to secure a modification of the harsh Mexican law, but was not able to do so. The question is an embarrassing one to the American government, as the question presented is that of one country endeavoring to change the law of another country."

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Three Men on Camel Backs.—The Baltimore (Md.) News of February 2, 1903, says: "There is a widespread advocacy in the press of the country of the placing of three men in the cabs of locomotives, especially of the camel-back type. It has been aroused by the frightful accident which occurred recently on the Central Railroad of New Jersey, by which a score of passengers lost their lives and three times that number were injured. In a dying statement, the engineer of the fast Reading express, which ran into the rear of a local and caused the tragedy, says that he did not see the signals because he was obliged to repair an injector, which was filling the cab with steam. The work took him longer than he realized, and when he reappeared at the throttle the disaster was impending. His fireman was stoking the fire at the time, and had gone to perform this duty before the injector got out of order. It is necessary on the type of locomotive which was hauling the train that the fireman go out of reach of the engineer in stoking the furnace. According to the statement of the engineer, the accident was due directly to the incompatibility of the duties which he was obliged to perform. He could not regulate the speed of the train, watch signals and do repair work all at the same time. His fireman was not available for any of these duties. A frightful loss of life resulted. The accident might have been prevented—in all probability would have been prevented—if a third man had been on the locomotive to watch the signals or make the repairs. In such cases the railways should be required to furnish the third man. If they do not care to do it voluntarily, a law should be passed making it compulsory. Life is too precious to be sacrificed so that the salary of one may be saved in operating an express train.

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Electric Headlights.—The Indianapolis (Ind.) News of January 26, 1903, has the following: "The Big Four for some time has used electric headlights on some of its engines, and they have, according to reports, worked successfully. It is understood that the company will equip the engines used on the St. Louis Division for the world's fair business with electric headlights that will throw a strong light 1,000 yards ahead of the engine. The Santa Fe has a number of such lights. The small dynamo is fixed on top of the engine and operated by steam from the boiler. The lights are under control of the engineman in the cab, and can be turned off or on at his will. Most of the Indianapolis lines have a few electric headlights, but the style of light is not in general use on any road."

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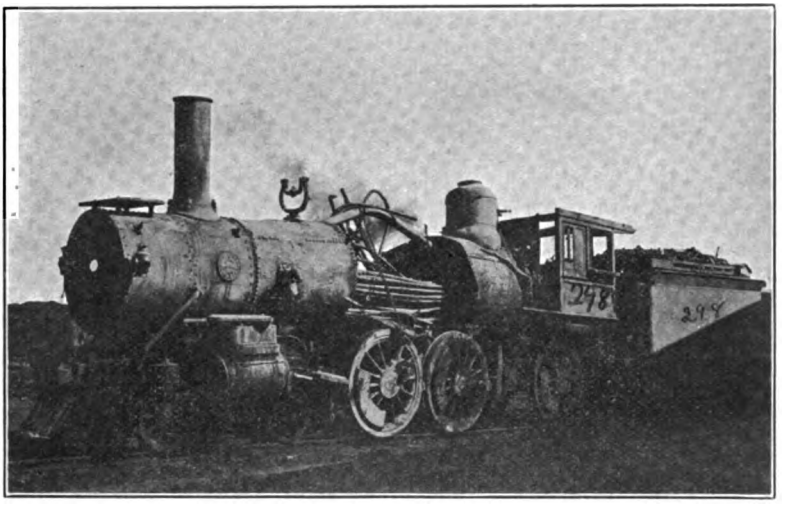
Solid Air.—While it is known that air can be made solid as well as liquid, up to the present comparatively few experiments have been made in this direction. A scientist recently converted a certain quantity of liquid air into a small solid mass, and on examining it found it was as transparent as clear ice and as elastic as rubber. To test its elasticity he struck it with a hammer, and the latter immediately rebounded. That solid air may prove to be of commercial value is the opinion of some scientists in Germany, but it is admitted that many more experiments will have to be made before any certainty on this point can be arrived at.—Compressed Air.

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Inspection by Train Dispatchers.—The Baltimore and Ohio Railroad has announced a new rule by which it is expected to render the train dispatching of the road more satisfactory. Each dispatcher is required to spend some time of each month traveling over the division, familiarizing himself with every fact that enters into the movement of trains. Such points as the exact location and length of sidings, the grades, crossings, etc., each dispatcher is supposed to know as well as the trainmen. The need of the system locally is due to the constant changes in the way of adding more facilities and extensions of the three and four-track system.—Railway and Engineering Review.

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A Run Under Trying Conditions.—Another instance of devotion to duty displayed by the railroad employe is furnished in a recent newspaper dispatch from Peru, Ind., which states that Edward Irish, an engineman of the Wabash road, ran the engine drawing the "Continental Limited" train, from Lafayette, Ind., to Danville, Ill., with hands and feet frozen. At the former point he went under the locomotive to make some temporary repairs, and when the same had been finished his extremities were found frozen to such an extent that amputation may be necessary, but be completed the run, making up thirty minutes of lost time.—Railway and Engineering Review.



A B. & O. BOILER EXPLOSION

On October 6, 1902, engine 298 exploded her boiler near New Martinsville, W. Va., on a branch of the B. & O. The engineer, fireman and conductor were blown from the cab a distance of fifty feet, and all were more or less seriously injured

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Wireless Telegraphy.—The British Postoffice Department has recognized the commercial value of Marconi's system of wireless telegraphy, and has removed the restriction preventing its application for commercial purposes within three miles of the shores of Great Britain and Ireland.

The Marconi Wireless Telegraph Co.

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announces that it has concluded contracts for a daily service of etheric news telegrams to a British mail steamship sailing from Liverpool for New York at the end of the current month. The vessel will be equipped with a complete staff and plant, which will enable the publication of a daily newspaper on board during the voyage.

Marconi at a recent dinner said that it would not surprise him to see the rates reduced to one cent a word for wireless messages transmitted across the Atlantic ocean, although his contract calls for a rate of ten cents per word at present. Mr. Marconi stated that the cost of establishing a trans-Atlantic wireless telegraph plant was less than $200,000, against $4,000,000 to lay a cable.

An idea of the extraordinary power that is used at Marconi's Table Head station for transmitting messages across the Atlantic by space telegraphy is given by Dr. Parkin, who sent to the London Times the first complete message a few days ago. He says the apparatus is of such remarkable power that the sound, as each letter is transmitted, is so great in volume that it is necessary to use cotton as a protection for the ear-drums. He compares the sending of a message to a miniature thunderstorm. A spark, fully half an inch in width, is shot out upon the air when the key is pressed.—Telegraph Age.

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Salaries of Railway Presidents.—One railroad president, A. J. Cassatt, of the Pennsylvania, is generally credited with receiving $75,000 a year. The presidents who receive $50,000 a year, or near it, are few in number. Some of the younger men brought East within the last few years are among these, and are paid about this amount for the hard work they have shown themselves capable of. When Frederick D. Underwood was talked of for president of the Erie, James J. Hill, it is said, told J. P. Morgan that he would like to place Mr. Underwood at the head of the latter road. Mr. Underwood, who had strengthened the new Baltimore & Ohio road as general manager under the reorganization, made two inspections of the Erie last year, and, according to report, was called to Mr. Morgan's office one day and asked what he had found. It is understood that he said that with free sway he could save 20 per cent. of the cost of operating the Erie road, and put it on a par with the other trunk lines. He said that it would take the hardest work of his life, and that he would stake his reputation on it for $50,000 a year. His terms were accepted. William H. Truesdale was wanted by the Lackawanna Railroad early in 1899. He had become so valuable to the Rock Island as first vice-president and general manager that the directors bid to retain his services. The Lackawanna, however, outbid the Western road and Mr. Truesdale came here with a corps of Western lieutenants to direct affairs of one of the greatest coal roads, and to make it also a great passenger system, at a salary around $50,000 a year.

Samuel Spencer, president of the Southern Railway, which has spent millions in developing the South, received $50,000 a year. E. P. Ripley, president of the Atchison, Topeka & Santa Fe, since its reorganization, whose policy has practically built up the system to its present strength from Chicago to San Francisco, receives $50,000 a year, it is understood generally. Marvin Hughitt, president of the Chicago & Northwestern Railway since 1887, receives $50,000 a year, and A. J. Earling, president of the Chicago, Milwaukee & St. Paul Railroad, receives near that figure. William H. Newman, president of the New York Central, probably receives $50,000 since he succeeded S. R. Callaway, who received $40,000, it was understood, and accepted a much larger sum, said to be $100,000 a year, to become the head of the American Locomotive Company. President Burt, of the Union Pacific, was offered a flattering salary to leave the Northwestern, and is understood to receive about $35,000 a year, while no estimate can be placed upon the several salaries of E. H. Harriman in his official capacities in Union Pacific and Southern Pacific Systems.

George B. Harris, president of the Burlington road, is understood to receive $35,000 a year, and C. S. Mellen, of the Northern Pacific, a similar sum. James J. Hill, who is president of the Northern Securities Company, is understood to draw $50,000 a year, and a nominal salary as president of the Great Northern Railway. A. B. Stickney, who heads the Chicago & Great Western, probably draws a salary of $35,000 a year. He is the father of his own road, as few other railway presidents are in the country. B. F. Yoakum, president of the St. Louis & San Francisco System, which has been branching out so widely the past year, is understood to receive $35,000 a year. Sir

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William Van Horn, the head of the Canadian Pacific, probably receives a salary of $35,000 a year since becoming chairman of the board. Charles M. Hays, vice-president and general manager of the Grand Trunk road, was reported to have been offered $40,000 a year to return to that system when he left the Southern Pacific. Joseph Ramsey, Jr., president of the Wabash road, is credited with drawing a salary of $40,000 a year. George Gould is president of many roads, and through his control and that of the Gould family, probably draws many salaries, which aggregate a very large sum, chiefly made up of his salary as president of the Missouri Pacific road.

Many presidents of large systems draw smaller salaries, also, from occupying the nominal positions of presidents of several controlled, or subsidiary, companies. This adds to their income, and in the case of an officer like E. P. Ripley, for example, is a consideration of keeping a man of great ability at the head of a system at a salary smaller than he might be able to obtain somewhere else. Probably several railway presidents receive combined salaries as great as President Cassatt's in this way. Smaller roads pay from $10,000 a year upward, according to the importance of the line, its mileage, territory, and whether it is established or requires a master mind to develop its resources and the territory which it serves. Many presidents' positions are actually nominal or merely executive, the policy of their roads being directed from higher up.

In the great "one-man" power system which prevails generally on the railways of America, and in the great systems here, the number of very large salaried officers is comparatively small, so small, indeed, that, with an expenditure for labor by the railways last year of $610,000,000, the 9,700 officers, including all officers of the railways, received an average pay of $8.26 per day (45,300 engineers getting an average of $3.78 per day, the highest average next to "officers"), or only about 3.6 per cent. of the pay-roll of the railways.—New York Evening Post.

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Can't Change the Map.—American railway builders may not substitute their own names for the time-honored appellations of places in Mexico, for the government will not tolerate it. The president of the Kansas City, Mexico and Orient Railway some time ago changed the name of the port of Topolobampo to Port Stilwell, in the plans, maps and literature of that enterprise, but the company has for the second time been warned and admonished by the Mexican government that this renaming will not be sanctioned and that "it must abstain from giving another name to the said Port of Topolobampo, inasmuch as it had no power to change the name of localities in the republic officially recognized." Things generally go in Mexico very much as the authorities want to have them, and it looks as if Port Stilwell would have to go into desuetude.—Railway Age.

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In the Hands of the Trust.—The Standard Oil Company has secured control of the Beaumont oil field in Texas and the Jennings oil region in Louisiana.

There are only a few small companies remaining outside, and they cut very little figure in the marketing of fuel oil.

The price of fuel oil has been advanced to $1 a barrel, and the indications are that the quotations will go still higher.—Associated Press Dispatch.

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A Great Country.—A member of Lodge 593 contributes from Edmonton, Alberta, the following "boomer" verses, descriptive of the great Canadian West. The G. P. A. of the Canadian Northern should hunt up this enthusiast, who is authority for the statement that you "can read a newspaper by daylight from 2 a. m. to 11 p. m., in the month of June"—which would make it very inconvenient for lovers. It will be noted that the first letters of the lines of the verses form the words Canadian Northern:

Come out of the crowded centers
 And breathe the pure air of the West.
Now is the chance of a lifetime,
 Are you looking for a place to invest?
Don't waste your youth in the city,
 If you only venture you'll own
A land of sunshine, in Alberta;
 Not a storm like a blizzard is known.

'Neath the sands of the Saskatchewan
 River,
 Of gold a quantity is found.
Rolling prairie for farming and grazing
 To satisfy all does abound.
Here you dig coal from the banks of the
 river;
 Everywhere in abundance it lies.
Rare is this beauteous country
 'Neath the bluest of all the blue skies.

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Railroad Conductor Law Unconstitutional.—From the Columbus (Ohio) Citizen, of January 12, 1903, it is learned that the court of that circuit has overruled a decision of the common pleas court in a case wherein the State of Ohio was plaintiff and the C., C., C. & S. R. R. was defendant. It says:

"The common pleas court had awarded a verdict of $500 against the road under a law which provides that a conductor of a road must have had at least two years' experience. The law also provided that it should not apply to men holding positions as conductors at the time the law was passed. The conductor in question was one Timothy Creamer. The law provided for a penalty of $1,000.

"The circuit court reversed the decision on the ground that the law was unconstitutional. The contention was that the law did not operate equally. A man with twenty-three months' experience would not be eligible, whereas a conductor with one month's experience would be eligible if he was in service at the time the law was passed."

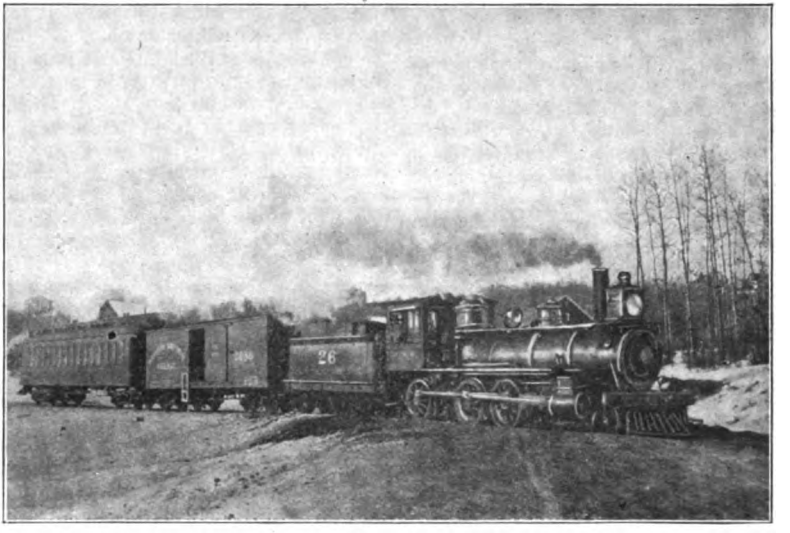
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Meant to be Funny.—A man in Mississippi telegraphed for ten gallons of whiskey and the telegraph company failed to deliver the message.

The man brought suit against the company in the sum of $25 for nondelivery and consequent damage.

The claim case in due course came into the possession of the superintendent of telegraph who understands the characteristics of the Mississippi citizen.

The superintendent's endorsement ran something like this: "I recommend that the amount claimed be paid in full; when a man in Mississippi telegraphs for ten gallons of whiskey, and the message is not delivered, he has full and sufficient grounds for a Mental Anguish suit."—Telegraph Age.



FIRST ENGINE TO CROSS SASKATCHAWAN RIVER

Canadian Northern Railway, E., Y. & P. Division. Train leaving Edmonton, burning native coal

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Pension Schemes.—The following is taken from exchanges:

At a meeting of the directors of the Reading Railroad held in December last, a pension plan was adopted. This plan is said to be similar to that in force on the Pennsylvania Railroad. The age limit on the Reading Railroad, except in special cases, is said to be thirty-five years.

The statistics of the pension department of the Pennsylvania Railroad at the close of its third year of existence, December 31, 1903, show a total of $864,713.27 disbursed in pension allowances during that time. During the same period 1,851 employes were retired on pensions

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381 of whom died during the three years. Of all retired, 359 were of the 65 to 69 year class, of whom 261 were retired upon their own request.

* * *

Railroad Accidents.—Exchanges report wrecks to have occurred recently as follows:

On January 14, 1903, a passenger train and a freight train on the Great Northern Railroad collided in the yards at Barnesville, Minn. The engineer and fireman of the freight train were both injured, the former losing a leg and the latter a foot and received injuries about the face.

Through what is said to have been a mistake of a yard employe a switch was left open in the Chicago yards of the Chicago and Grand Trunk Railroad, permitting a fast freight to crash into a switch engine which was standing on a siding. The fireman of the switch engine was caught beneath the engine and the escaping steam from the boiler scalded him to death.

On January 21, 1903, a snow train on the Phillips and Rangeley Railroad, consisting of three engines, a snow plow and flange digger, was wrecked two miles south of Dead River station during the night. Good headway was being made when the leading engine broke away from the train, mounted the frozen snow and water and overturned on the bank of the river. The engineer, fireman and the conductor, who was riding on the engine, were badly scalded by steam and hot water.

Early in the morning of February 2, 1903, the second section of a stock train ran into the rear of the first section at Cloverdale, Ill., on the Illinois Central Railroad during a dense fog. A number of stockmen were in the caboose of the first section, some of whom were killed and injured.

The engineer was killed, and the fireman, conductor and brakeman were severely injured in a collision between two freight trains on the Illinois Central Railroad at Vera, Ill.

The Southwestern Limited on the Big Four Railroad, while running as a double-header between Columbus and London one morning recently, had a narrow escape from a serious accident. The train was running at a good speed when a driving rod on the second engine broke and caused the engine to leave the track, throwing the engineer from his seat and severely bruising his back. The fact that the front engine kept the track averted what might have been a very serious wreck.

On the night of January 26, 1903, through the misunderstanding of a semaphore signal in the Burlington yards at Kansas City, a passenger train and a switch engine collided. The fireman of the passenger train received a fracture to one of his legs by jumping. No one else was injured.

In a wreck caused by a washout on the Oregon Railway, near Bingham Springs, January 25, 1903, the engineer and fireman were killed and several passengers were injured.

In a rear end collision in the Belt yards at East Toledo, Ohio, January 23, 1903, the engineer of a Wheeling and Lake Erie engine in attempting to jump out of the cab window was caught and crushed by the tender and his back was broken.

By the breaking of a side rod of a Northwestern passenger engine January 22, 1903, the engineer was injured and the fireman was seriously hurt.

On the morning of January 23, 1903, the New Orleans Special of the Illinois Central Railroad ran into an open switch near Memphis, Tenn., fatally injuring the engineer, fireman and baggagemaster, and seriously injuring two mail clerks.

On January 21, 1903, the engine of a passenger train on the Chicago and Northwestern Railroad, while running at a good rate of speed, broke a side rod and disarranged the air brake so that the engineer could not stop the train, and it had to be stopped by means of the hand brakes. The fireman was thrown from his seat, and his face and back received terrible injuries. The engineer had both legs mashed, and both men were burned by escaping steam.

On January 22, 1903, a passenger train on the Chicago and Great Western Railroad was wrecked at South Freeport by a broken frog, resulting in the death of the engineer and fireman and the injury of about twenty passengers.

On the night of January 20, 1903, an extra train ran into a rotary snow plow on the Great Northern Railroad near Chiwaukum, killing or injuring about twenty-five workmen.

On January 16, 1903, while a freight train on the Cotton Belt Railroad was ascending a grade east of Texarkana, Tex., it broke in two and the rear portion ran back down the grade and crashed into another freight train which was following, killing the engineer and dangerously wounding the fireman and head brakeman.

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Increased Wages.—Based upon information obtained from press reports the following increases in wages are reported:

An agreement has been reached between the Santa Fe Railroad and its engineers, whreby the men have been granted a substantial increase in wages.

Conductors on the New York, New Haven and Hartford Railroad have been given a new schedule with increased wages, effective January 10, 1903.

The Rock Island Railroad Company has granted an increase of about 10 per cent. in wages to its engineers, effective February 1, 1903.

An increase in wages, ranging from 8 to 17 per cent., has been granted the engineers and firemen employed on the Chicago and Western Indiana, and Belt Line Railroads.

Increased wages and other concessions have been granted to the engineers and firemen on the Fremont, Elkhorn and Missouri Valley Railroad, a part of the Northwestern System.

The telegraphers on the Baltimore and Ohio Railroad have been granted an increase of 10 per cent. in wages.

Yard conductors and brakemen who were not included in the advance heretofore given by the Erie Railroad have been granted an increase in wages.

An agreement has been reached between the Southern Pacific Railroad and its firemen whereby the men will receive an increase of between 6 and 12 per cent. in wages.

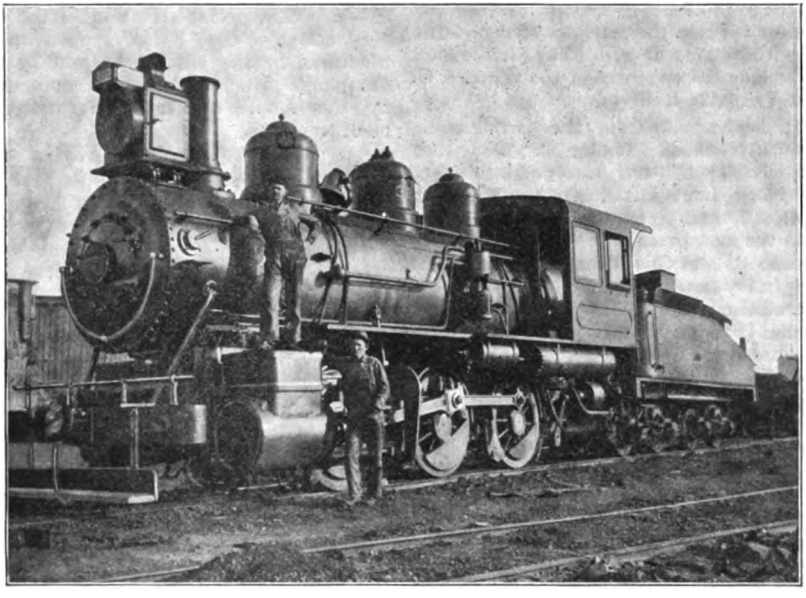
Announcement has been made that an agreement has been sanctioned by the B. & O. Co. whereby an advance in wages amounting to 10 per cent., dating from January 1, 1903, has been granted to conductors, brakemen and yardmen.

A new scale of wages averaging 10 per cent. increase, has been granted by the Louisville and Nashville Railroad to its conductors, enginemen, flagmen, brakemen, baggagemasters and other employes in train service.

Employes of the Baltimore, Chesapeake and Atlantic Railroad have been granted an increase of about 10 per cent. in wages effective from January 1, 1903.

An increase of 10 per cent. in wages has been granted the engineers, firemen, conductors and brakemen of the California Northwestern Railroad.

Announcement is made that the Missouri, Kansas and Texas Railroad Company has granted an increase of 15 per cent. in the wages of conductors and trainmen in freight service and 12 per cent. to those in passenger service.



TYPE OF NEW TEXAS AND PACIFIC SWITCH ENGINES

Built at Cooke Locomotive Works; 20x26 inch cylinders; 120 tons

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Notes.—"The Employes' Savings Fund of the Pennsylvania Lines, west of Pittsburg" is said to be the name of a new society organized on that system. The plan as outlined in press reports is to allow the employes to deposit such portion of their salaries with the local agent as they are able to spare, such deposits to be credited on the books of the company and a receipt to be given the depositor. The deposits are to be made in even dollars and the depositor is to carry a pass book. The company is to have the use of the money, for which it will pay the depositor at the rate of 3½ per cent., and the depositor is given the privilege of depositing or withdrawing at will. The plan is said to include the employes of the C., A. & C. and Vandalia Railroads.

It is learned from the Indianapolis (Ind.) News of January 22, 1903, that the block system has been put into effect on the St. Louis Division of the Big Four Railroad, and it is the intention to extend the system to the road between Indianapolis and Cleveland. On account of the heavy rush of business that is expected during the World's Fair the St. Louis Division was chosen first. It is claimed that if the rules of the blocks are obeyed it is impossible to have collisions.

According to press reports the Big Four Railroad will shortly construct a cut-off on its St. Louis Division, from a point east of Hillsboro to Mitchell, Ill., which will reduce the distance, save many troublesome stops for the fast trains and avoid some bad road. It is said to be the intention to cross other railroads between the points named overhead wherever possible to do so, and will call for a large amount of filling.

The Baldwin Locomotive Works are said to have turned out during the years 1900, 1901 and 1902, 1,217, 1,375 and 1,520 locomotives, respectively. The money value of the year's output for 1902 was about $20,000,000. Of the locomotives built 424 were compounds, 74 were electric, and 25 were oil-burners.

According to the Brookhaven (Miss.) Times of January 15, 1903, a locomotive engineer was killed near Knoxville, Tenn., recently, and the train had run eight miles before the fireman discovered it. When the train passed a town where the fireman knew it should stop he investigated. It was learned that the engineer had been struck on the head by a rock falling in a cut.

The Columbus (Ohio) Citizen of January 31, 1902, says: "William H. Klunk, a fireman formerly in the employ of the Hocking Valley Railroad Company, has brought action against the company for $10,000 damages. Klunk claims that a defective water gauge burst on his engine, throwing a piece of glass in his eye and ultimately destroyed the sight."

The Pittsburg (Pa.) Leader, of January 10, 1903, says: "The Baltimore and Ohio has commenced the work of changing its compound engines to the more simple high pressure cylinder machines. The contract for the necessary castings has been placed with the Bass Works at Fort Wayne, Ind."

We invite special attention to the advertisement of the "Kelso" coupler, manufactured by the McConway and Torley Company. Much information concerning this new coupler appears therein that will be of interest.

The Derry-Collard Company are publishing a series of "Practical Papers" issued in pamphlet form, the first being on the subject of "Turning and Boring Tapers." The purpose of the papers is to give information on special subejcts.

Among the important reports that will be read before the next annual meeting of the Traveling Engineers' Association will be those on the desirability of equipping freight and switch engines with the "straight and automatic" brakes, and on the advantages of the brick arch in locomotive fireboxes.

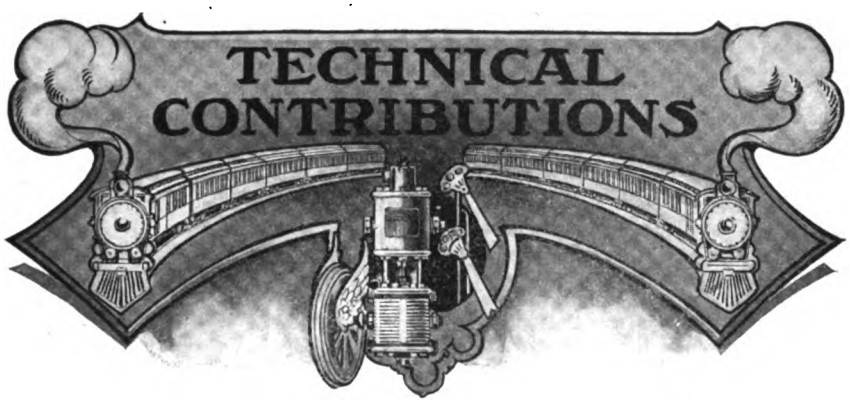
The International Correspondence Schools have published a pamphlet entitled, "One Thousand and One Stories of Success," which contains the names of students that have taken courses of instruction and have secured better positions and wages thereby.

Mr. W. V. Powel, formerly president of the Order of Railway Telegraphers, has been appointed right-of-way agent of the Missouri Pacific, the St. Louis, Iron Mountain and Southern, and leased and operated lines, with headquarters at St. Louis, Mo.

According to press reports an effort is to be made to compel railroad companies operating in New Jersey to employ assistant engineers, whose duty it will be to ride in the cab with the engineer, keep a sharp lookout ahead, and in case of accident to the regular engineer he must be competent to take charge of the engine and run it. It is expected that the proposed law will prevent such accidents as the one that recently happened at Westfield, as on the class of engines at which the bill is aimed the engineer and fireman are not in close communication.

The Kansas City (Mo.) Journal of February 9, 1903, states that white men are replacing the negro brakemen who have been employed on all passenger trains of the Choctaw lines through Oklahoma and Indian Territories, and that the new employes are attracting considerable comment.

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Piston Valves

THERE is a lively interest manifested by the locomotive firemen on various railroads where they have been assigned to modern power equipped with piston valves. One reason for this is that they will be required to explain the difference between the piston valve and the slide valve when they are examined for promotion to the position of engineer. If they are unable to explain the difference it usually means a delay in their progress in reaching the bright irons in the right side of the cab and the humiliation of having others informed that they are not possessed of the knowledge that they should have acquired while serving their apprenticeship at the scoop. It is quite different with the engineer who has run a locomotive several years that was equipped with a plain D-valve. Then when the balanced valve was introduced and applied there was little difference in it to him, other than the ease of handling which was in his favor and the occasional strip blow, which he soon learned to detect and report correctly. If he handles his train properly there are usually no more examinations for him to pass on machinery and the interest taken by him in the construction and operation depends altogether on the makeup of the man.

The writer desires to present a case that recently came under his observation of work reported by an engineer on his arrival at a terminal with a piston-valve, simple engine, which read: "Run valves over, engine very lame." The engineer registered, told his troubles and went home to rest while repairs were being made. The roundhouse foreman got the valve setter to run the valves over as reported and found that the marks on the valve stem came all right with the tram, gave the valve gear a good inspection and allowed the engine to go out without making any changes. Of course the engine was just as lame as when she came in and the engineer had reason to think that the work was not done and so expressed himself on his return. He had heard of valves being set by making a few chalk marks on the guides and presumed that was the way they were set on this engine. He was positive as ever that the engine was lame. The foreman was equally positive that the engine was all right. They took her out on a clear track and endeavored to locate the cause of the engine's being lame. This engine had a piston valve with internal admission and the heavy exhaust occurred when the cross-head was at the back end of the stroke. The engine was put in the roundhouse and the valve on that side removed. The inside packing ring on the front end of the valve was found to be broken, which was responsible for the heavy exhaust, as the broken ring permitted the steam to enter the port leading to that end of the cylinder too soon and cut it off or closed the port too late, and the outside ring, representing the exhaust edge of the valve, opened the port to the exhaust passage the same as if the inside ring was all right. The front end of the cylinder received more steam than the back end or either end of the other cylinder, and when the valve opened the port to the exhaust passage the greater volume of steam escaping to the atmosphere caused the engine to sound lame. How much better it would have been had

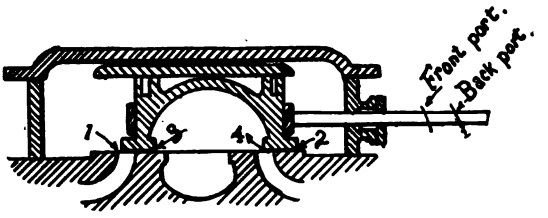
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the report read: "Examine packing rings in piston valve on left side." He would have had a better trip and would have saved the roundhouse the expense of running the valves over on an engine that only needed a packing ring in the piston valve and was waiting for some one to locate the defect.

If we were asked by what means power was developed by a locomotive we would say that the steam pressure is admitted to the cylinder between the piston and cylinder head, exerting a pressure on the piston, which is transmitted to the crank pin through the main rod and its connections. This pressure, applied to the pin when it is above or below the center of the axle, will cause the main driving wheels to revolve on the rails and produce a tractive power or drawbar pull in proportion to the diameter of the cylinders, pounds pressure per square inch exerted on the piston, length of the stroke, diameter of the driving wheels and the weight on the rails to give it the necessary adhesion, or, as it is termed, weight on drivers. Now our first consideration is to get the steam into the cylinder to push the piston to either end of its stroke. Next, when it has performed that duty, we should aim to get it out of the cylinder as quickly as possible to reduce what is termed back pressure, as pressure on the exhaust side of the piston will retard the live steam admitted at the other end of the cylinder from forcing the piston to the end of its stroke in the opposite direction. All the useful energy or work that we can obtain from the steam in the cylinder of a simple engine is the difference between the pressure of admission and exhaust less the amount of back pressure on the exhaust side of the piston. To open the admission ports, to allow steam to enter the cylinder, close the port or cut off the steam at the desired point of stroke, allowing the expansive force of the steam to push the piston to the end of its stroke, opening the port to allow the steam to escape through the exhaust passage, closing the port in time to produce sufficient compression to promote economy in the use of steam generated in the boiler, is the function of the valve, whether plain, balanced or of the piston type. To secure the necessary compression the valve should close the port before all the exhaust steam has escaped to the exhaust, and the steam thus confined in the cylinder is, or should be, compressed to fill the space between the piston and the cylinder head and the volume of the port to as near the initial pressure or the pressure of steam that is admitted to the cylinder when the port is again opened for admission. To illustrate the difference in the slide and piston valves we will refer to Fig. 1, which shows the slide valve with the front port slightly opened and the marks on the valve rod made with a tram from a fixed point on the cylinder casting that indicate to the valve setter the position of the valve at all times after the cover has been placed on the steam chest, in which *1* and *2* represent the admission edges of the valve, and *3* and *4* represent the exhaust edges. Fig. 2 represents a piston valve with outside admission, and the rings marked *1*, *2*, *3* and *4* still represent the same edges of the valve as shown in Fig. 1. Fig. 3 shows a piston valve with inside or internal admission, which changes the position of the edges of the valve, also the direction of its movement, which is directly opposite that of the slide or piston valve with outside admission, as shown in Figs. 1 and 2. It will be observed that the marks on the valve rod are also changed in their position. The inside edges of rings *3* and *4* are the admission edges of the valve and the outside edges of rings *1* and *2* are the exhaust edges of the valve. The valve in Fig. 3 could be given the same movement as in Figs. 1 and 2 by changing the position of the eccentrics on the shaft and still use the indirect rocker or motion. But it is usually more convenient to employ a rocker with the valve arm turned down opposite the link arm. This leaves the eccentrics in the same position as they were with the outside admission valve and indirect rocker, but gives a direct motion to the valve with internal admission as the valve rod and the eccentric rod are both traveling in the same direction, then we have a direct motion valve gear for this style of piston valve. Fig. 4 shows a piston valve and cylinder, internal admission. The arrows indicate the passage of the steam. Fig. 5 shows a valve chamber bushing for a piston valve. The longitudinal strips or bridges are not to make separate ports as is sometimes inferred. Their purpose is to strengthen the bushing and prevent the packing rings in the valve from springing past the edges of the ports while traveling over them. The bridges in the lower side of the bushing are wider than the others to insure sufficient bearing where the ends of the rings are held in place by dowels or stops that are placed in the packing ring groove to prevent the rings from turning. When the

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Fig. 1.



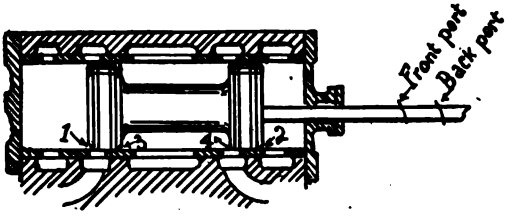
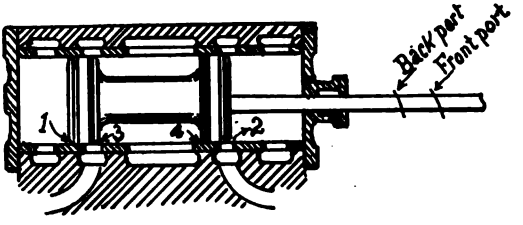


Fig. 2.

Fig. 3.



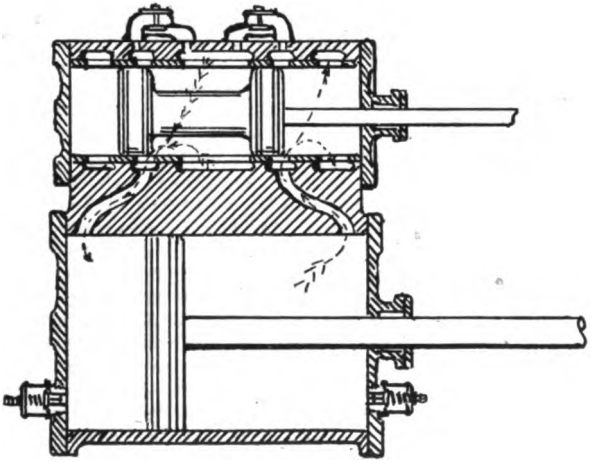
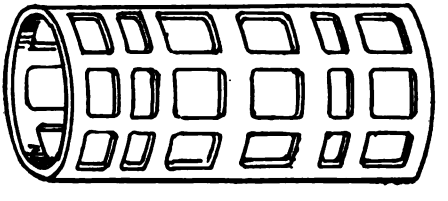


Fig. 4.

Fig. 5



PISTON VALVES

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average size cylinder used on the majority of roads did not exceed 18 or 19 inches and the boiler pressure averaged 160 pounds, the balance D-valve was satisfactory. The notches in the quadrant were usually made to engage the latch of the reverse lever in the 6, 9, 12, 15, 18 and 21-inch cut-offs. In order to give the engineer an opportunity to obtain a finer adjustment of the cut-off, the fine notched quadrant was applied to many of the simple engines, as with the old style quadrant the engine was often worked in the 9 or 12-inch notch because she would not make the time working the 6 or 9-inch, and the 9 and 12-inch was as much too heavy as the others were too light. The notches allowed the engineer to obtain the desired cut-off and regulate it to effect economy. This was appreciated by enginemen until the cylinders increased in size from 19 to 22 inches in diameter, which required larger admission and exhaust ports, also a larger valve. This with the increased boiler pressure to 190 or 200 pounds made the valve hard to handle when the throttle was well opened and necessitated the partly closing of the throttle when it was desired to change the position of the lever on the quadrant. When the valve was running rather light on the lubrication, if the latch was disengaged sometimes the engineer and the lever would both go into the corner. Then the fine notches were not used as intended and many a fireman can testify that he has shoveled extra coal into the firebox for the reason that the throttle would be eased off and longer cut-off used than necessary because it was too hard work to hook the lever back and the speed and power were regulated by the throttle. To overcome this and make the engine easy to handle, the piston valve was applied to the large modern engines, and was expected to enable the engineer to manipulate the lever with ease as well as to reduce the cost of maintenance or repairs. The fact that they will run from one to two years and then show very little wear on the rings and bushings, that there are no leaky steam chest joints for steam to escape and obscure the vision of the engineer, no valve seats to plane, or balance plates, strips, or rings, for adjustment and very little trouble with the valve rod packing, as it is exposed only to the pressure of the exhaust steam, and the drops of valve oil that are fed through the sight feed glasses of the lubricator seem to be more effective with the piston valve than with the slide valve in case either becomes dry, are all in favor of the piston valve. The report of face valves is not entered on the work book as frequently as before the introduction of the piston valve. We are all familiar with the manner of obtaining the marks on the valve stem as shown in Fig. 1. By placing a piece of tin in the port and pushing the edge of the valve up to it then scribing the mark on the stem, with a piston valve internal admission it would be impossible to locate the position of the valve in that manner. Therefore they are usually provided with a hole drilled into the valve chamber at each end that registers with the admission ports and plugs are screwed into the peep holes to prevent steam escaping. When it is desired to mark the stems the plugs are removed and a piece of small copper pipe with a piece of wick inserted in the end that forms a very convenient torch for this purpose is inserted in the hole and the edges of the packing rings may be easily seen and the position of the valve located when the edges of the rings are opposite the edges of the ports, and the stems are marked accordingly with the same accuracy as they were with the strip of tin and the cover removed on the D-valve. In case of disconnecting on one side, the ports may be covered by placing the valve central on its seat, which may be determined by the steam ceasing to flow from the cylinder cocks on the disabled side when the throttle is opened or by placing the rocker arm in a vertical position. As for the engine tearing herself to pieces when descending a grade with the throttle closed and the lever full gear, it is not considered good practice to drift at high speed with the throttle closed and lever in full gear forward. It is better to leave the throttle slightly opened or cracked enough to admit sufficient steam to the cylinders to hold the air valves shut, thus preventing the pistons from forming a partial vacuum in the cylinders that will cause the hot gases and cinders to be drawn into them. This is the reason for not tightly closing the throttle. The reason that the lever should be notched well up in the quadrant will appear clear from the following example: Take an engine with a 60-inch driving wheel including tire. This sized wheel will make 336 revolutions per mile. The valve will weigh possibly 175 pounds. If the engine is equipped with an intermediate rocker or arm, we have another hundred pounds, neglecting the weight of the rocker and friction we have 275 pounds and a valve travel of 5¾ inches. If we multiply the travel of the

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valve by the number of revolutions we have 275 multiplied by 5¾ inches equals 1,932 inches or 161 feet. If running at the rate of one mile per minute with the lever in full gear forward the forward motion eccentric rod is nearly opposite the link block and the work of pushing and pulling the weight of 275 pounds a distance of 161 feet and stopping and starting it 672 times in a minute is performed by the forward motion eccentric. When we stop to think this over is it strange that the engine seemed as if she was pounding herself to pieces, and does it not look reasonable that this practice will result in excessive wear on the eccentric straps and hot eccentrics? If the lever is notched up at a shorter cut-off instead of the forward motion eccentric doing all the work it is relieved of a part of it in proportion to the position of the link in the link block and the back motion eccentric will receive a part of the load. When you are going down a hill leave the throttle cracked and drop the lever down until it begins to pull, then notch it back to where it will feel easy and let it remain there until the speed is reduced. As the speed decreases the lever can be moved farther forward and will not pound.

As the piston valve can not lift from its seat as the D-valve can when compression is greater than the initial pressure, provision is made to relieve the strain and prevent the fracture of cylinder heads by placing compression or relief valves in the cylinder heads adjusting the springs to the desired pressure. When the pressure exceeds the resistance of the spring the valve is unseated and the pressure relieved. Fig. 4 shows relief valves in cylinder heads, also a style of by-pass valve that opens when the compression exceeds the pressure that is admitted into the valve chamber between the pistons of the piston valve, when the compression opens the valve, instead of the steam escaping to the atmosphere it flows through the passage into the valve chamber and effects that much economy. Various styles of by-pass valves are used on piston valve simple and compound engines.

Compound locomotives may have two, three or four cylinders with either slide or piston valves and a description of each kind with illustrations to trace the steam through the various passages from the boiler to the stack would require considerable space. Descriptions of the different types may appear later. Look out for them.

W. G. WALLACE.

Pump Testing.

An air pump should be tested to ascertain when it is in need of repairs and, after repairing, it should be tested to ascertain whether the result of the repairs is satisfactory. The simple tests easily made in service should be applied frequently and are as follows:

The first and least accurate is to listen at the suction when the pump is working slowly against full pressure and note the apparent portion of each stroke over which air is drawn into the cylinder. The better the condition of the cylinder the nearer to completion of each stroke will air be drawn in. None should blow back at the suction or out at either the stuffing box or cylinder heads and the strokes should be about even. *Do not* cover the suction opening for the purpose of testing, as such a method is unreliable. The test described is so simple and easily made as to leave no excuse for failure to observe a very bad condition of the air cylinder.

A better and yet very simple test, one that should soon be employed when listening at the suction, indicates a defective condition, and which ought otherwise to be used frequently, *has two important requisites.* These are the air pressure worked against, being that in the main reservoir, and the other the pump speed.

First obtain 90 pounds main reservoir pressure; next, open the air cylinder oil cup; and then, by the pump throttle, regulate the speed to 30 strokes or *exhausts* (15 blows at the open oil cup) per minute. Now, during each down stroke hold a finger just above the open cup to observe whether there is any discharge before the piston reaches the lower end of its travel. Any such indicates a faulty condition, either leakage past the piston packing rings, back from the main reservoir into the cylinder or both. These are serious defects and the first is entirely too common.

Where the oil cup blow takes place on the down stroke, stop the pump, making sure this is fully accomplished by noting when the piston rod is at rest, opening the drain cocks and closing the lubricator steam valve if necessary to accomplish this, then again note whether air blows out of the air cylinder oil cup. If so, all such is coming back from the main reservoir past one or both of the discharge valves or their seats, the threaded portion. Even though by the lower discharge valve or its cage threads the fact will be indicated at the oil cup as the packing

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rings of the air piston are practically never perfectly air tight.

While it is too much to expect such tightness at the discharge valves as would permit of pouring oil through the cup with the pump stopped and pressure in the main reservoir, yet there is no excuse for more than just perceptible leakage when holding a finger or loose strip of paper just above the cup opening.

Neither is it practicable, as previously implied, to prevent all leakage by the rings, nor does an absence of any oil cup blow on the down stroke indicate the absence of leakage, as might at first thought be supposed. When the piston is descending it is creating a space to be filled to atmospheric pressure. Therefore, any air escaping at the oil cup on the down stroke *is only a portion of the leakage over the amount required*, with that drawn in from the outside, *to fill the space above the piston to atmospheric pressure.*

By supposing a loosely fitting piston wtihout rings, an air-tight cylinder and the rod moving slowly up and down it will be seen that the air would be churned from one side of the piston to the other yet at no time would there be any material pressure on the compression side or vacuum on the other. Rare cases are met with where piston rings are so worn and closed in by overheating that a very slow speed after pressure is fully pumped up will, with gummy receiving valves, actually bring about the operation just described. At such times the steam pressure required to drive the piston is so low that the exhaust is very weak, the pump working with little sound. A good pump when working against the usual pressure carried will have a distinct chug at each reversal. It is not a metallic blow and does no harm.

With the pressure and speed given, no oil cup blow will be felt on the down stroke when the air cylinder is in good order. A blow over the last one-fourth of the stroke warrants immediate repairs and one for half of the stroke is about as bad as is possible.

Many times the report, "Pump air valves sticking; clean them," should advise instead of leakage past the air piston packing rings or back into the cylinder from the main reservoir. Receiving valves are opened by suction or, in other words, the partial vacuum created by the air piston. Back leakage or leakage past the piston packing rings so nearly supplies the partial vacuum as created as to allow a slight amount of gummy oil to stick receiving valves which would otherwise open. When receiving valves stick, remember this and test for the faults described. But first, by cleaning, get the upper receiving valve to work freely, as such a fault, this valve being put in with no lift or bad leakage at the air stuffing box are the only causes which will prevent the test described from indicating air piston packing ring leakage or back leakage from the main reservoir.

After pumps are overhauled in the repair room they should, in addition to the oil cup test, be made to pass a more severe one, an actual efficiency test.

The first essential with a locomotive is that she haul the proper tonnage satisfactorily and no matter how much expense has been put on her in repairing the results are *not* considered satisfactory if this tonnage is not hauled on time. The air pump is not put to any similar service test; hence, one on the lines described is necessary to guard against those repaired going into service with a lower efficiency than warranted. There is no better teacher for the observing repairman than a good efficiency test and some, at least, who have thought they were doing good work would sometimes be surprised at the results of such a test.

Broken air valves or seriously defective seats, permitting strong leakage, are not only indicated by the tests described, but will cause unequal pump strokes, as will also a stuck valve or one with insufficient lift. These faults are easily detected and located with a little reasoning after making the tests described, carefully noting the results and bearing in mind the ordinary operation of the pump.

The efficiency test should not develop the greatest capacity of the pump, but, instead, should be one requiring a certain minimum and moderate delivery or output of air at a fixed pressure and certain speed. It is very desirable that the pressure worked against be near that ordinarily met with in service, or about 90 pounds, but where this is impracticable a lower pressure will answer, though it should not be less than 60 pounds. The writer considers a speed of about 60 single strokes or *exhausts* per minute to be better than a higher one and that even less affords a more severe and accurate test. The slower the speed of the pistons the more opportunity there is for leakage, the common and most serious fault, to reduce the efficiency. By providing a series of leakage openings, to be used one at a time, each having a slightly greater *area* than the other the efficiency of each pump can be meas-

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ured comparatively by the opening it can supply when working at, say, 60 strokes per minute and against 90 pounds pressure. These two factors can, within the limits implied, be made to suit the facilities, mainly steam pressure, available, but should be the same for all pumps tested.

A less accurate test, yet far better than none, is to use a fixed opening and pressure and note the number of strokes per minute required to maintain the pressure. Its weakest feature lays in the fact that, within reasonable limits, the air delivered per stroke increases with the speed, there being less time for leakage to have its effect.

This is illustrated by a leaky bicycle pump which will only pump up the tires when worked rapidly.

How many repairmen have a provision by which the pump exhaust can be discharged for a time at a point where its character can be accurately noted? Yet this test of the steam cylinder is easily provided for and is well worth making. Its absence results in serious leakage being overlooked. This test should be made with high air pressure, preferably 90 pounds, and rather slow speed as these afford the most accurate observations. At the same time, the condition of the air cylinder should be good, as the absence of the resistance this will afford would result in a low steam cylinder pressure which would not plainly indicate steam leakage existing.

A repairman should never await the complete assembling of pump to test the discharge valves, the cap, seat and cage if air pressure is at all times available, as it should be. With the air piston out and the discharge valves fitted and in place the air pressure should be applied by a connection at the discharge opening and each outside joint, as well as the air ports, inspected for leakage, repairing at once any found.

With the pump completed this can readily be extended to the cylinder heads, receiving valves, the cap and cage, by removing a discharge valve before turning air pressure into the discharge opening.

F. B. FARMER.

Combustion.

Forney gives the amount of carbon in soft coal, as a general average, at 80 per cent., hydrogen 5 per cent., and the rest as incombustible or waste material, and the amount of air required for the combustion of each pound of coal at 12 pounds, equal to 150 cubic feet. The rate of this air admission must be proportionate to the rapidity of the coal consumption. Too much, especially over the fire, cools, and too little does not supply sufficient quantity for combustion, and in either case there is a loss of heat.

If dampers and ash pan were perfectly tight and the openings above the fire were adjustable to the demand for air, then one could control the air admission to suit the need of the hour, but in locomotive practice it is easily seen that this would be almost impossible of accomplishment and, therefore, there will always be a loss of more or less heat from this cause, and also from the ease with which the gases escape if not quickly consumed, and the condition and quality of the coal a locomotive is liable to receive on a single trip over a division of a railroad, and also the condition of the firebox in regard to leaking must be taken into consideration.

While the amount of carbon and hydrogen in soft coals on a general average is placed at 85 per cent., the amount in any certain kind of soft coal can only be determined by the test; the comparison of the performance sheets of parallel lines of railroads is no practical standard by which to determine the ability of the enginemen as economical coal consumers unless the same grade of fuel is used, the locomotives of the same class and condition, and the physical characteristics of the roads the same.

Hydrogen is the lightest gas, and, as the tendency of any gas is to expand and fill the surrounding space the hydrogen rises as soon as released from the fuel and, as the interior of the firebox when a locomotive is working is in miniature a storm center, it is immediately consumed or escapes through the flues, and in its combustion a certain amount of moisture is consumed. After the hydrogen is consumed the carbon is also burned, and this process is so rapid as to be practically continuous. There is nothing destroyed in the economy of nature. The coal is changed into heat and waste material; the oxygen of the air changes its form; the water is converted into steam, yet while the form of the element is changed it still exists in another form.

In addition to the loss of heat by the gases escaping unburned, or a part of the solid part of the carbon being unconsumed, there is a loss of heat which goes out with the escaping unconsumed gases and air, which, if they do not burn and give off heat, absorb it, and by radiation

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or the giving off of heat to the surrounding atmosphere or adjacent bodies, by a heated one.

When the firebox and boiler are not properly lagged with a good nonconductor of heat there is a great loss of heat by radiation. Owing to the necessity of frequent stay-bolt inspection and replacement it is general custom to leave the outside of the firebox unlagged. If one desires to prove that a large amount of heat escapes unabsorbed up the smokestack, stand on the smoke arch and one can feel the escaping heat radiate as it comes out from the top of the smokestack. The loss of heat, while unmeasurable, amounts to quite a per cent. of the real heat value of the fuel consumed.

The arch is made of firebrick extending in the form of an arch across the firebox from side sheet to side sheet, from a point below the flues in the flue sheet and sloping up and extending back to such a distance as desired. The number of bricks in the arch or, more properly speaking, the size of the arch, being varied to meet the master mechanic's idea of each particular road's requirements. Sometimes an engine will do better with a larger than a smaller arch, or vice versa, and this also should enter into the consideration. The bricks next to the tube sheet are hollowed out so as to permit of a certain amount of draft in front of the arch for the fuel next to the flue sheet and which otherwise, on account of the arch lying so close to it, would burn too slowly for satisfactory results, but the intention in having an arch is that by throwing the gases and the air back and over the arch to the tubes there will be more time for their mixing and burning than where they go directly into the flues.

The brick arch serves also as a protection to the flues by preventing the cold air that is admitted above the fire from coming in direct contact with them and cooling them down, and thus causing them to leak. Where air is admitted above the fire the use of an arch is very necessary. As the arch prevents the sudden cooling of the tubes it also causes their rise in temperature to be gradual, as it heats and cools slowly. Long after the fire is out of the engine the arch will be found to be glowing hot, and this has led many roads to avoid its use, particularly in freight service, where the demand for power to handle the business being acute and, therefore, there being not sufficient time to wait for the arch to cool before the boilermaker could do his work, and many of the engines having flues that required calking every trip, rather than be to the expense of removing and replacing the arch every trip the use of the arch has been abandoned, temporarily at least. The arch being very hot and retaining its heat it aids in bringing the gases rising from the coal to an igniting temperature more quickly than could otherwise be done, and in this respect it also aids combustion.

Some roads have tried the use of the water table instead of the brick arch as it is more durable. This consists of two flat sheets of boiler iron about four or five inches apart, attached to the side sheets and filled with water. Its use, like that of the hood over the door to deflect the air from the flues, is not so general as that of the brick arch.

If gases enter the flues unburned there is no chance, practically, of their being burned there owing to the low temperature in the tubes and the amount of heavy gas in them. A light lowered in a well where there is carbonic acid gas will immediately be extinguished, and the knowledge of this fact is used by well diggers to protect them before descending into old wells for the same reason that when a blaze enters the flues charged with gas at a low temperature it dies at once. The flues being surrounded by water and being in direct contact with the fire only at the firebox end where the blaze enters them for a short distance are always at a low temperature compared with the adjacent parts of the firebox, and this temperature diminishes toward the front end of the boiler. Flues seldom leak at the front tube sheet from the fact that there they are not subjected to the radical changes in temperature that they are at the firebox end, therefore, at the front tube sheet end the contraction and expansion is not so great. A small tube is used in locomotives for two reasons: First, in a given boiler shell more heating surface can be obtained by the use of small flues, and a thinner one that will transfer the heat passing through it more readily to the water can be used. This can not be carried to an extreme, as too thin a flue would collapse and too small a flue would stop up quickly, yet a 2-inch tube can be made much thinner than a 4-inch tube and stand the same pressure. As the same amount of heat that raises one pound of water one degree will raise nine pounds of iron one degree the fact that iron is a good heat conductor is fully demonstrated. The same amount of heat will raise thirty pounds of mercury or gold one degree, and from this it is plain that water is not as

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subject to rapid changes of temperature as most other substances.

A tube 2 inches in diameter and 12 feet long would have the following surface: Multiply the diameter 2 by the fixed number 3.1416 which equals 6.2832, and this multiplied by the length of the flue in inches, which is 144, equals 904 plus square inches. A flue 4 inches in diameter would have twice that surface, or 1,808 plus square inches, but the 4-inch tube occupies the space of four 2-inch tubes and there would be a loss of heating surface of the difference between 3,616 plus (equals 4 × 904 plus) and 1.808 plus, the surface of the 4-inch tube, or a loss of 1,808 plus square inches of heating surface.

While the blaze does not live long after entering the flues the heat that is passing through them to the atmosphere, and which otherwise would be a total loss, by this means is largely utilized. The feed water entering the boiler at the boiler checks near the front end of the boiler, and while warmed a certain degree by the steam from the boiler uniting with it, is still lower in temperature than the gases passing through the flues and it absorbs their heat as they pass each other. The water as it passes back toward the firebox continues to absorb heat from the escaping gases in the tubes and grows hotter and hotter until when it reaches the sheets where it will be subjected to the greatest amount of heat it is almost ready to be converted into steam, and it does not cool the sheets that are in direct contact with the fire as it would if the water was passed from the tank directly to the rear portion of the boiler.

If one could see the interior of a locomotive boiler when a heavy demand was being made on its steam furnishing capacity the sight would be one to be remembered. There would be the solid body of water at the front of the boiler gradually growing warmer and expanding in response to the heat it had absorbed, and next to the firebox would be a great mass of seething bubbles exploding constantly into the invisible vapor, which is ordinarily denoted as steam, and rising to the top of the boiler to pass out and do the work for which it had been created. Like the interior of the firebox the change would be constant and rapid.

To meet the increased demand of combustion to supply larger cylinders the question of increased grate area has received much attention from locomotive designers and builders. It was recognized that the deep box between the frames had reached the limit of length, and that its grate surface could not be increased any farther in that direction. The shallow box had reached the limit of width and length, and what is commonly spoken of as the trailer, or a locomotive with a small independent driver or enlarged truck wheel, whichever you choose to call it, over which the firebox may extend has been the result of this consideration. This gives the extra needed grate surface and in this type of engine the fire is brought much closer to the tubes and crown sheet than in the deep box and, therefore, other things being equal, they should have better steaming qualities and undoubtedly do, when one considers the extra demand made on them for steam production.

W. L. FRENCH.

♦ ♦ ♦

Testing the New York Engineer's Brake Valve, Model 1902.

Owing to the modifications made in the construction of the New York Engineer's Brake Valve, the method of testing the 1902 model is somewhat different from that recommended for the older Vaughn-McKee brake valve, the change in method of testing, of course, being due to the modifications introduced.

When making a thorough test to ascertain the condition of the different valves in the 1902 model, the first valve to receive attention should be the main slide valve *114 A*, which is shown, together with the other modified parts of the 1902 model, in Figs. 1, 2, 3, 4 and 5, and to which the reader is referred.

The main slide valve *114 A* controls the communication between the main reservoir and the train pipe, and also between the train pipe and the atmosphere. The communication between the main reservoir and the train pipe should be perfectly controlled, and also the communication between the train pipe and the atmosphere.

Therefore, to test for leakage past valve *114 A*, place the handle *123* of the valve in lap position, and close the brake valve cut-out cock, in the train pipe, below it.

Having done this, start the pump, and charge the main reservoir and chamber, *B*, Fig. 1, with full main reservoir pressure. While the pump is accumulating the pressure in chamber *B*, observe the black hand (train pipe) on the air gauge, and note if there is any perceptible increase in train pipe pressure or a blow at exhaust passage *C*. If there is, the main slide valve is leaking; and the rapidity

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with which pressure increases in chamber *A* or the train pipe indicates the degree of leakage past the valve.

The above method for testing the main slide valve applies, as will be readily understood, when the brake system is without pressure, and the pump is started to supply pressure, after the handle of the brake valve is placed on lap.

Should the brake system be already charged, and it be desired to test the main slide valve, the following is the method that should be used:

Close the brake valve cut-out cock as before, and place the handle of the brake valve in the emergency position. This will empty the train pipe, and cause the engine, so that any slight leakage into it quickly increases the pressure therein, and makes it easily perceptible on the air gauge.

The next thing to ascertain is, whether the brake valve will automatically lap the service port *F* or not in a service application. If it will not, the failure to do so may be due to one, or several combined, of the following causes: Leakage from the supplementary reservoir and its connections, both at the reservoir and at the brake valve connection to passage *H;* leakage through back cap gasket *167;* past packing leather *107* and packing ring *3;* past ball check valve *184;* and possibly at either or both of the places where port

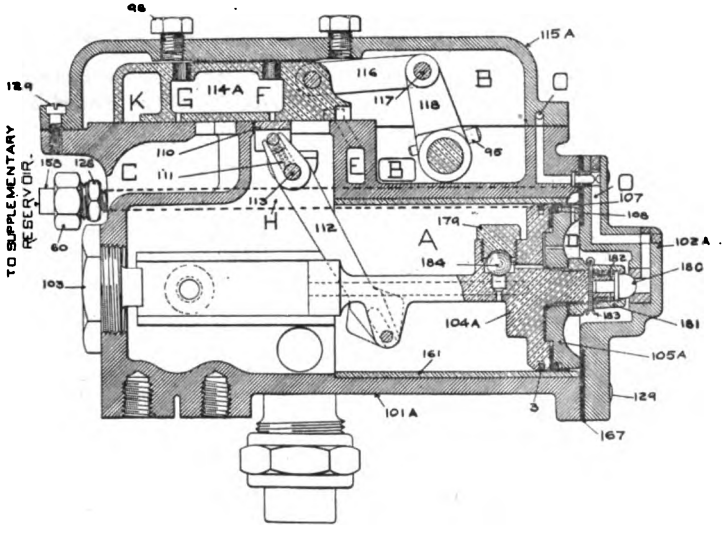


Fig. 1. Longitudinal Section—New York Engineer's Brake Valve, Model 1902

black hand on the air gauge to fall to zero, or, as some say, to the peg. Then move the handle back to lap position. This will permit the pressure behind piston *104 A*, in chamber *D* and the supplementary reservoir, to escape to the atmosphere, thus removing the possibility of leakage past this piston into train pipe chamber *A*, which might be mistaken for main reservoir leakage past main slide valve *114 A* if piston *104 A* leaked. Any pressure that is now indicated by the black hand on the air gauge is caused by the main reservoir air leaking past the main slide valve into chamber *A*.

The reason for closing the brake valve cut-out cock when testing the main slide valve is to reduce the volume of the train pipe, making it very small compared to that of the whole train pipe on the engine, so that any slight leakage into it quickly increases the pressure therein, and makes it easily perceptible on the air gauge.

O passes from the valve body *101 A* into the valve cover *115 A*, as indicated in Figs. 1, 2 and 5.

To test for any leakage that may be present at the supplementary reservoir connections, both at the reservoir and at the brake valve, at the back cap gasket *167*, or from port *O*, along the joint which the valve cover makes with the valve body, all that is necessary to do is, while all parts of the brake valve are charged with air, to coat the unions, joints, etc., with soapsuds or kerosene, when any leakage will be quickly indicated by the air bubbles, which will arise.

To test for leakage past ball check valve *184*, packing ring *3* and packing leather *107* combined or singly, close the brake valve cut-out cock (to reduce train pipe volume), and move the handle of the

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valve to the emergency position. This will empty chamber *A* and the train pipe of all pressure.

If now there be any leakage past the packing ring *3* and packing leather *107* or the ball check valve *184*, the air may be felt or heard escaping at exhaust passage *C*, until all pressure is reduced from chamber *D* and the supplementary reservoir. Pulling the handle of the brake valve back to lap position, after air ceases to flow from passage *C*, and hearing no air escape at exhaust passage *C*, is a further proof of leakage past these parts.

To be able to tell whether the leak is past the ball check *184* or the packing leather *107* and packing ring *3*, would require long experience in testing these parts; but then it would be of no practical value to us as, if any one of these parts is leaking, the whole piston must be removed to make repairs, and when this is done, all parts of it may be easily inspected and their condition ascertained.

Leakage past the vent valve *180* can be easily detected when the handle of the brake valve is in any position except the service and the emergency, and it is manifested by a slight blow at the exhaust passage *C*.

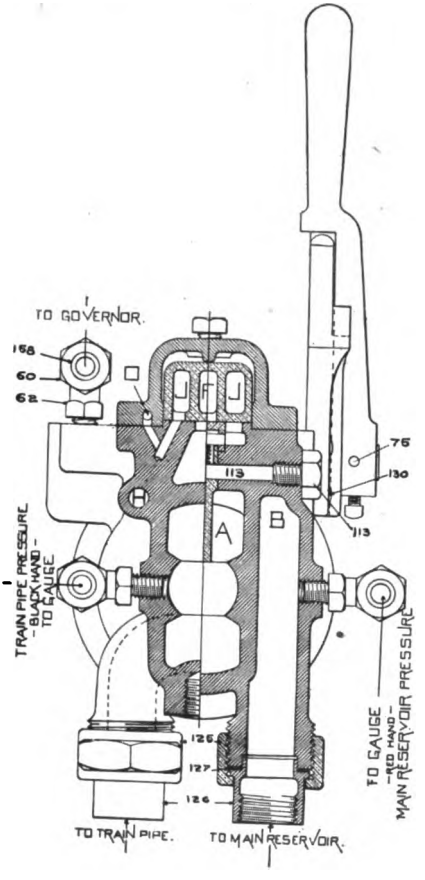


Fig. 2. Cross Section—New York Engineer's Brake Valve, Model 1902

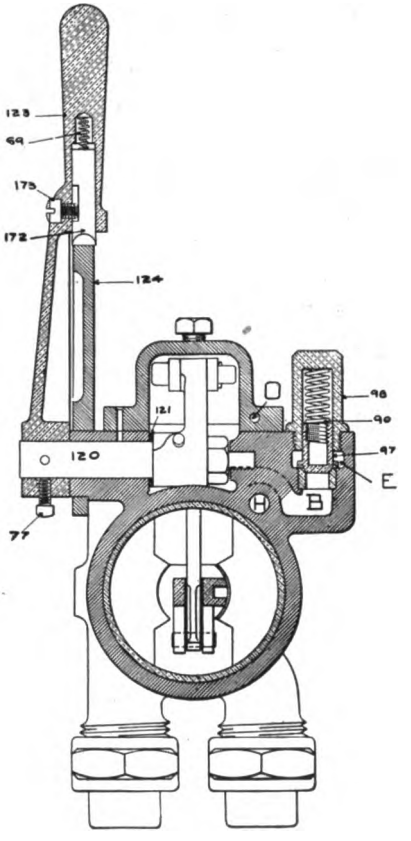


Fig. 3. Cross Section—New York Engineer's Brake Valve, Model 1902

If valve *180* leaks, move the handle to service position and back again once or twice and the leak will cease unless something about the valve is loose and out of place.

Should the small graduating, or cut-off, valve *110* leak it will permit train pipe air to escape to the atmosphere through exhaust passage *C*, in service applications, after it has moved far enough to cover port *F*. To test this valve have all brakes released, and the train pipe fully charged.

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Then move the handle of the brake valve to a position about midway between the lap and the service positions. If cut-off valve *110* leaks, air may be heard escaping at exhaust passage *C;* for when slide valve *114 A* is midway between lap and service positions port *G* is over exhaust passage *C* in the seat, and cut-off valve

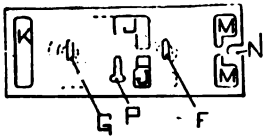


Fig. 4. Face of Main Slide Valve—New York Engineer's Brake Valve, Model 1902

110 entirely covers port *F*, so that all air that leaks past cut-off valve *110* enters port *F*, and escapes to the atmosphere through port *G* and exhaust passage *C*.

After a little experience in testing the 1902 model brake valve for leaks according to the above instructions, it will be found quite an easy matter to locate a defective valve or, if a combination of leaks exists at the same time, to tell which valves are at fault.

The excess pressure valve *97* may leak sometimes, and if it does the effect it will have on the operation of the pump will depend somewhat on the way the pump governor is piped to the brake valve. If the governor is piped to chamber *E*, just forward of the excess pressure valve *97*, it will prevent the pump from accumulating excess pressure in the main reservoir, at all times; but if piped to chamber *A* it will prevent the accumulation of excess only while the handle is in release, and in running position. To determine whether it is leakage past this valve that is holding the pump down in speed or not, place the handle in running position, open one of the angle-cocks on the engine, just enough to keep the train pipe pressure below seventy pounds or whatever pressure the governor is adjusted for, and then note if the pump starts to work and increases the main reservoir pressure to near 90 pounds, or to 20 pounds more than the train pipe pressure. If the pump governor is piped to chamber *A*, place the handle of the brake valve on lap position, and note whether the pump starts to work promptly at its usual rate of speed until full main reservoir pressure is obtained. If it does, a leaky excess pressure valve is indicated.

With the pump governor piped to chamber *E*, of the brake valve, and you are unable to obtain excess pressure, with the handle in running, or in lap, position, it is likely that the excess pressure valve is leaking sufficiently to keep chamber *E* charged to the limit of pressure for which the governor is adjusted, causing it to operate continuously, and so hold the pump throttled down.

And the same is likely true if the pump governor is piped to chamber *A*, and you are able to obtain full main reservoir pressure with the handle in lap position, but can not obtain any excess pressure with it in running position.

When testing the excess pressure valve care should be taken to know that the pump governor is working properly, as if there should be leakage past the diaphragm air valve *13* it will produce an effect similar to a leaky excess pressure valve, and you might be deceived in thinking the valve at fault.

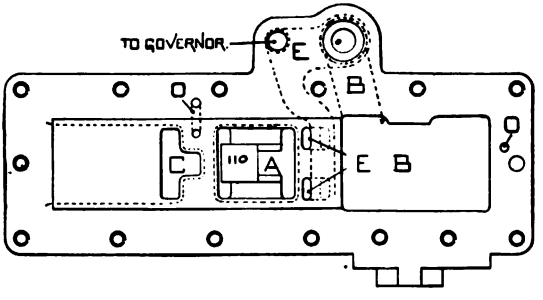


Fig. 5. Seat of Slide Valve—New York Engineer's Brake Valve, Model 1902

The condition of the brake valve cut-out cock with regard to leakage may be ascertained by closing it, and opening the angle-cock at the rear of the tender, letting all air escape from the train pipe, below the cut-out cock; and by releasing all air from the auxiliaries through the release valves. Then immerse the end of

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the hose in a pail of water, and note whether any bubbles appear on the surface. If bubbles appear, the cut-out cock is leaking.

Before commencing to test the brake valve it is a good plan to test the brake valve cut-out cock, and know that it is tight. Then when it is closed in making the various tests, there can be no back leakage into chamber *A* from the train pipe, if the latter is charged up.

J. P. KELLY.

* * *

More Adventures of Conductor Grogan & Co.

After a hard, six-mile climb, we pulled into Summit siding, to meet "everything on the road," as White Line George said. He was braking ahead, and after letting us in, stayed and set up the switch, so as to catch the caboose and eat his lunch. Dooley Dunn came down out of the cupola, and the two began dropping eggs into a bucket of hot water on the stove. I was dead-heading over the road and picking up a few air brake points, as I usually do when I ride with Tim Grogan. He had gone down to the telegraph office, and I caught the opportunity to get the boys started.

"Say, George," I inquired, "how did Timothy get along on passenger, last month?"

"Oh, all right, I reckon; they can't throw him none now. He done got initiated last summer on them Lakeside excursion trains—you all heard about Grogan bringin' that nigger Sunday-school train back to Corning without his air a workin', an' me an' Dooley, there, a tryin' to do the armstrong stunt? Well, it were this way: They give us one of them suburban injines, with a cowsnatcher on both ends, an' old Peggy Grimes. Peggy's first show at the main line in eight year, an' he's a givin' the coons a hay ride fer their money 'round them bone breakin' curves this side a Sundown, a gettin' their religion an' natural cussedness sorta mixed up, but when old Peggy comes a cayoodlin so gaily out onto the straight track, what you all a guessin' he sees? It were a house on the track."

Dooley let a couple of eggs fall on the floor, and both brakemen lay back yelling with laughter.

"Fireman says Peggy looks straight at that house, probably thinkin' he's got 'em agin, till fireboy yells, an' then Peggy gives her the quick-business an' stops with the pilot nosed right under this yere navigator's kitchen where some females is a gettin' dinner—no, it weren't the Bender family; 'twere some corn-fed Hoosiers, a tryin' to move their house over the crossin', an' hadn't sense enough to flag—didn't figger on no trains what weren't scheduled. An' it took all the diplomacy of the crew to keep them skeered niggers from makin' a mighty rough house—which the same were not long remainin' on the right-of-way.

"This yere little diversion spiles the day for the niggers, an' for us, too. Peggy don't see nothin' wrong with the injine, an' when we get to the Lake we cut her off an' run 'round the train, an' couple to it from the pilot. He had shut off his pump an' didn't start it again till nigh on to leavin' time, an' when he did we found the brake train pipe broke, back of the pilot, atween the cut-out cock behind the steam chest, an' the pilot hose; that's the reason it weren't noticed afore—hadn't been no pressure there, an' it broke when we hit that shack.

"Well, Grogan don't know what t'ell, but he's equal to any old occasion, an' says 'Well, well, Peggy, get a fix on that; ain't got much time,' but Peggy's some dubious, an' finally says it's all off—have to brake by hand; an' he shets the cut-out cock.

"That's leavin' him all right with his driver and tender brake; I see Grogan now gettin' red an' sorta puffin' out, an' I says 'Pap, don't you all know that every passenger crew on the road is supposed to carry a pair of combination hose, with brake couplin' on one end an' a signal couplin' on the other? If we had a pair we'd be all right—which we ain't.'

"Now I don't know; I'm makin' a bluff to queer Grogan; it's the first time he knows they was such things; but he makes his face sharp as a dime's worth of cheese an' says 'Mister Grimes, get your commodation hose an' you won't have any trouble in fixin' that, a-tall. The brakes are in proper condition on my keers an' I expect you to connect with 'em soon as possible.'

"That hits Peggy below the belt, but he was educated in the same alley with Grogan, an' he hollers to the fireman—'Hay, son, look in the box an' get that consolidation hose, an' be quick.'

"Well, the fireboy ain't got no understudy, so he goes a fishin' an' drags out a hose as he ain't seen none like it afore, with two couplin's, one painted black an' the other red, an' he hops down an' delivers the goods afore Grogan has time to get away.

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"Now it's a sure-enough case of Alphonse and Gaston; an' Peggy an' Grogan's a double-darin' each other to fix things with that one hose. I'm up agin' it, but I take the hose while they's a pow-wowin', an' connect the black end to the brake hose on the coach, an' the red end to the signal hose on the pilot, an' cut in the cocks.

"They's both rubberin' me outa the tail of their eye, an' when Grogan hears a coach brake release—one what still had a little wind in her—he says 'Thanks, George,' an' tells Dooley to go to the other end of the train an' make a test by pullin' the air signal for Peggy to try his brakes.

"Course he can't make the whistle blow — ain't cut into it — an' Grogan tells Peggy to set the brake—an' don't get no brake, only on the engine and tender.

"After some further excitement, Grogan orders Peggy to pull out with his air and signal in jest that shape which I'm a tellin' you; an' talk about brakin' by hand—them coons all had more'n their rates—had took on a few over at that power house behind the hill, an' was cake-walkin' in the aisles an' scrappin' so's you couldn't get through the keers. Now mister man' I want you all to tell me, if we couldn't of worked the air on that train? Grogan was interviewed by the instructor, but he won't loosen up."

I told George yes, they could; and it seems as though a little thought on the engineer's part would have worked it out all right. Combination hose are to be carried in pairs—"useless each without the other"—and George had connected one of them all right, but its mate should have been attached behind the tender, connecting the brake and signal hose at that point, and when the angle and stop-cocks were opened, the engineer would have control of all brakes on the train and engine and tender. The air signal would not have been operative, but that is of little importance, compared with gaining the air brakes.

The signal line is thus used to return the brake train-pipe air from rear of tender to pilot, and this line gets pressure from the main reservoir through the reducing valve. If it is of the improved style it may be cut out from main drum connection by means of the cock it contains for that purpose; but it is hardly necessary, as the reducing valve is set at 40 pounds, and is sealed shut at any pressure above that. It is not necessary to ever draw the train line that low, except at an emergency stop, so the main drum air could not interfere, even at emergency.

I had heard about Peggy's trouble at Lakeview. It had been the means of bringing out the fact that several engines on the road had defective train pipes, both brake and signal, ahead of the forward stop-cocks, and a number of the pilot hose showed up defective. Peggy's accident was the cause of an order issued by the superintendent of motive power, that roundhouse air inspectors shall connect the pilot brake and signal hose by a combination coupling, and open brake cock, this being the "ounce of prevention" to possible delays and trouble when attempting to double-head or head-on to a train.

"Tim didn't savvy what them combination hose were for, nohow;" resumed White Line George, "but he won't listen any to no straight an' helpful information; so a feelin' sorry like, for him, I make a talk to Dooley, here, an' tell him if you bust a train pipe on a keer in a passenger train, which you don't want to set her out on the hind end, jest use the signal pipe on that keer, to run your brake air through to the other keers behind it. You take one of them combination hose to cross over from the brake hose ahead of the keer, to the signal hose on the defective keer, an' use the other one behind it to cross back agin. Of course you can't use your air signal, now, from the keer with the busted pipe, nor from any of the others behind it."

If possible, a car with a bursted train pipe should be switched to the rear of the other cars, so that the air signal line would be operative, but there is at least one State in the Union where there is a law against placing baggage, mail or express cars on the rear of a passenger train.

If such a defective car is placed at the rear, the brake hose should be coupled to it as well as the signal hose, but with the angle-cock closed at the head end of the defective train pipe, and the one on the rear of the next car ahead open, so that if the rear car broke off, the separation of the hose would apply the brakes on the cars ahead, and they would not get far enough apart to do any damage if they came together again.

Dooley Dunn said he was braking on passenger, once, when the engine broke away from the baggage car, whose forward pipe hangers were loose, and she pulled out a section of both the brake and signal pipes from the front end of the car; it was set out on the hind end of

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the train, but it had no hose left to couple to.

"Well," I remarked, "I wouldn't want to be the baggageman on that car; she might break off, and get together again a little bit too hard for one's health."

"Ah the divil;" Dooley replied, "phwat's the matter wid the tail-hose fixsht an the railing an the hind ind iv the thrain? Be jiz, didn't we unhook the thing and hook it agin on the front iv the crippled ca-a-ar? Be jiz, 'tis Grogan shtampin' his feet an the shteps, now."

WILL W. WOOD.

Mason; it is of fewer parts and has but one valve, which is practically balanced. A diaphragm of special composition phosphor bronze is held at its rim between the edges of the dome *M* and the body of the regulator. The diaphragm is slightly corrugated where its under side sustains the pressure of the train line steam, and the regulating spring *L* gives a resistant force upon it; if the spring pressure is strongest, the spindle *D* is pushed down opening the balanced valve; the steam, at boiler pressure entering at *A*, offers a resistance to the downward movement of

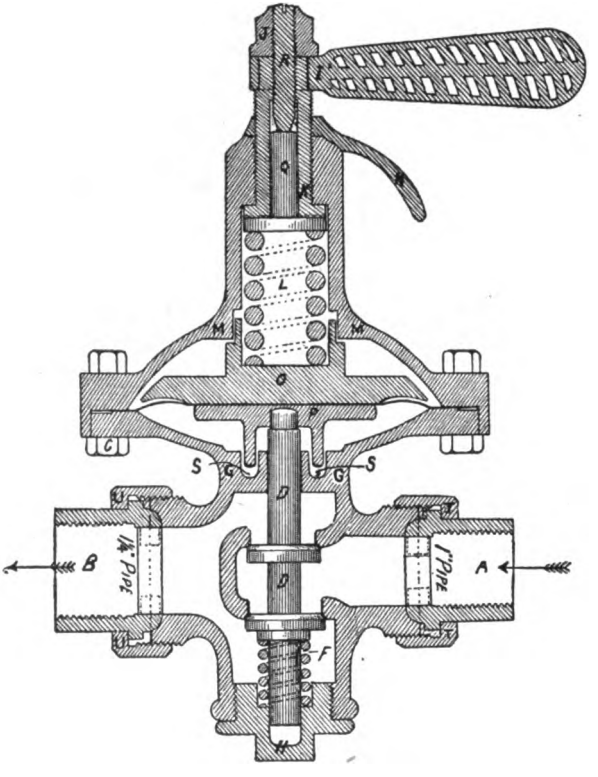


Fig. 1. The Gold Regulator

Regulating Valves.

The steam regulating valve of the Mason design, which is sent out by the Safety Car Heating and Lighting, and the Consolidated Steam Heating Companies, was illustrated and described in this Magazine for last December, but there are several other such valves in common use as locomotive equipment, that will probably interest enginemen.

The Gold regulator, Fig. 1, is largely used and is radically different from the the upper valve disc, but this is counterbalanced by the same force pushing down on the lower disc. This makes the valve very sensitive in opening and closing and in maintaining a steady feed at as light a train line pressure as may be desired.

The regulator is "set" by the handle *I*, a composition metal, and, like a stove lid lifter, hollow, for the circulation of air through it, which keeps it cool to the hand; when in position to feed the required pressure, it is fixed by the lock-nut and handle *N*.

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The play of spring *L* is controlled by the set-screw *R* which is a check on the maximum or minimum pressure to be delivered. The lower spring *F*, besides acting as a guide to the spindle *DD*, also uses its energy towards giving a more even balancing of the valve, as the upper valve disc is slightly smaller than the lower one to permit its entrance, but the action of the regulator, in the manner of a dashpot.

The valve having been opened by the spring, steam passes through and out to the train line at *B*, from which the reduced pressure finds its way past the spindle *D* in the neck of the valve body, up, into the chamber under the diaphragm which it forces up, further compressing

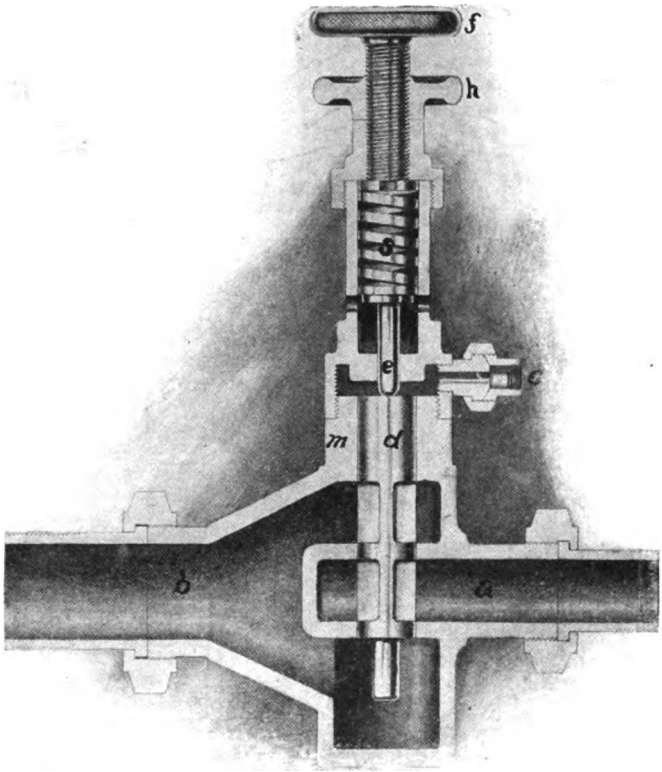


Fig. 2. The Eclipse Regulator

effect of the somewhat greater force of the lower disc is annulled by spring *F*.

The regulating spring *L* being above the diaphragm, is removed from contact with the steam, so that its resilience may not be affected by the extreme heat, and in case the diaphragm should break, the heavy metal of which the dome is composed would prevent scalding the men in the cab, which has happened with certain old style valves of the diaphragm type. The circular recess marked *SS* is a water pocket—a seal—to retard the passage of steam into and out of the chamber under the diaphragm, thus preventing violent spring *L* when the right heating pressure has been attained, drawing the valve discs to their seats, closing off further increase of train line pressure; and when it has weakened again, enough that the regulating spring can overcome it, the diaphragm and valve discs will again be forced down and the supply re-started.

The steam valve on the boiler head or turret should be carried fully open while heating a train, and the pressure controlled solely by adjustment of the regulating valve. When the steam heat must be shut off, temporarily, such as in changing engines or cutting the train, do it al-

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ways with the boiler valve, and do not disturb the regulator, unless to change the amount of supply which may be called for if the train is shortened up or cars taken on. The highest desirable pressure carried on the steam heater gauge in the cab, is usually figured to be the added pressures of five pounds for each car and twenty pounds additional; for instance: the highest pressure permitted with a three-car train would be thirty-five pounds, etc. This regulator is a product of the Gold Car Heating Co., New York and Chicago.

Regulating valves, in general, give satisfaction when new or kept in proper condition and free from obstructions, but no matter how correctly they are designed and made, diaphragms may break, and any valve that lifts, and falls to its seat, can catch scale and such stuff under it, permitting the pressure to increase above the desired limit. Such valves—or their gauges—must be watched, and the writer remembers with sorrow that he was a victim to his misplaced confidence in one of the most generally used regulators when, one Christmas day he went away to eat turkey, trusting the regulator not to permit a bursting pressure at a rather weak point in a location where such an accident would mean damage to valuable property. Well, a little hole worn through the screen, and a little piece of scale forced the opinion that some mechanical appliances have a human equation and are friends that can not be trusted when your back is turned.

Whoever designed the Eclipse regulator illustrated in Fig. 2, has had troubles of his own, and has surely been a user, before he became an inventor, of regulating valves. It will be observed that there are no *seating* valves, no slide valves and no diaphragms; the controlling valve is actually balanced, and it may be said that there is only one working part, which is the spindle *d* whose upper end acts as a piston and the lower end as a "spool" balanced valve. The high pressure steam enters the valve body at *a* and is always inside of the spool, whose flanges are of equal diameter, and the outer areas of these flanges are both exposed to train line steam, the connection to the train line being at *b*.

Screwing down the wheel handle *f* compresses the spring *s* upon the pin *e* which pushes the spindle downward unseating the valve, and steam passes through to the train line whose pressure is exerted against the piston head of the spindle *d*, and when the pressure is great enough it will be forced upward and the spring further compressed, closing the valve, or so nearly so as to only supply the determined pressure.

It is a "choke" valve, formed by the flanges of the spindle *d*, and can not be absolutely steam tight, but as they are made of a composition that does not wear away easily nor steam cut, and there is a minimum of friction, the very slight leakage through, of steam, has no effect, by reason that there is always condensation going on as the heat leaves the steam and radiates away from the pipes, and this requires a constant, though sometimes very slight, supply, to maintain the regular pressure. That such joints if well made are practical for steam valves of this class is proven by the results, and by the very slight escape of steam from the waste pipe which should be connected to the union at *c*; piston of *d* is of the choke style, and *c* is the outlet for any steam leakage past it.

Tightening or loosening the tension of spring *s* by screwing the handle *f*, increases or weakens the pressure to be carried in the train line, and when the regulator is once set, the position of the handle screw is fixed by tightening the lock-nut by its handle *h*. This valve has few parts, and, as one of its friends says, "if it works all right on dress-parade, you can depend on it for guard duty." It is manufactured by the John Davis Co., Chicago.

WILL W. WOOD.

♦ ♦ ♦

Brake Released by Loading a Car.

It is a good rule which requires blocking the wheels where cars are set out, particularly if the siding is on a grade or is where strong winds may be expected.

One of the several reasons for this is that loading a car having the brake beams hung from above the springs, as from the car body, will lessen the holding power of the hand brake, in some cases to an extent that will permit even a moderate wind or a slight jar to start it. In exceptional cases all holding power is lost and the car starts without the aids mentioned.

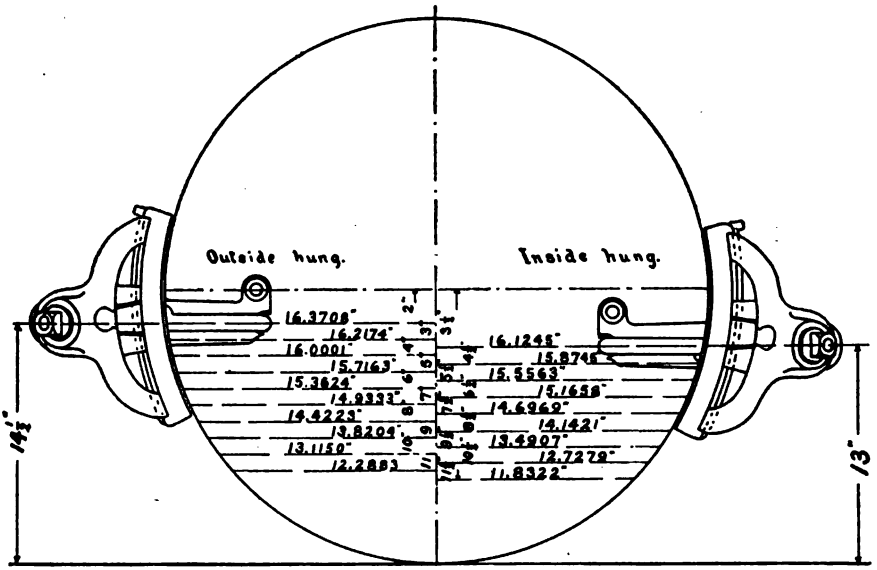
This is caused by the brake beams and shoes lowering as the increased load compresses the car springs. It will be evident that brake shoes just touching the wheels when at the same height as the axle, will be far away from the wheels if dropped straight down until almost touching the rails. Also, that the distance

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to the wheels increases faster the nearer the shoes are to the rails.

By reason of these facts and others, the greatest loosening of the hand brake from loading the car follows where the load put on is very heavy, shoes hang low when the car is empty, car springs are weak and the brake levers are proportioned to give a very large increase in the power applied at the hand brake wheel.

Where a freight car with outside hung brakes, suspended from the car body, sags considerably at the middle as the load is put on, this causes the ends to rise, and in a measure offsets the very considerable lowering of the brake shoes on the inside of each truck.



BRAKE RELEASED BY LOADING A CAR

Note.—The brake heads are shown hung in M. C. B. standard positions. To find increase of piston travel due to lowering brake beams when car is loaded, multiply the difference between the length of the parallel lines shown on the diagram by the total leverage of the car.

The accompanying illustration of the effect of lowering the brake shoes on the wheels was prepared by Mr. H. A. Wahlert, and serves to make the principle involved quite clear.

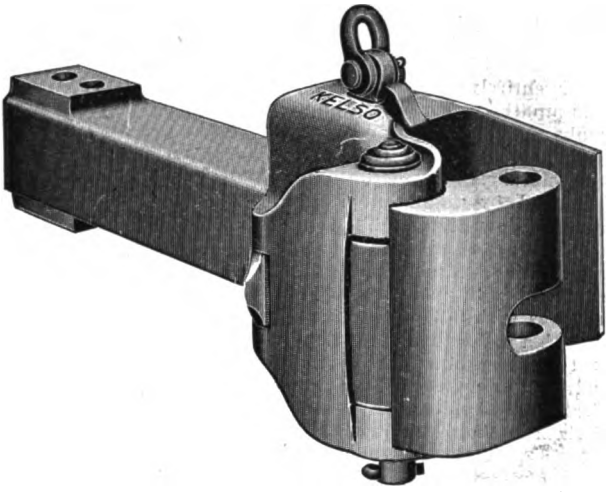
F. B. FARMER.

* * *

The Kelso Coupler.

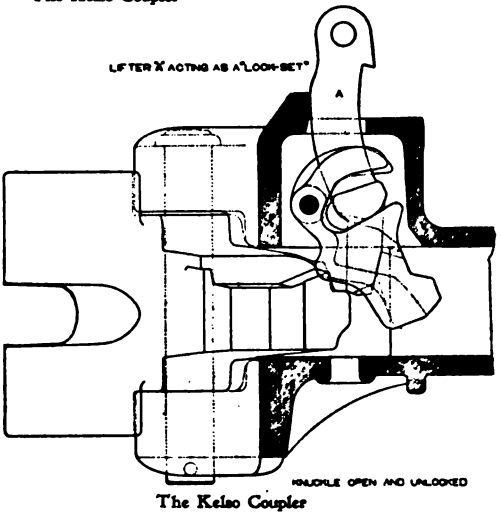
The majority of your readers are probably aware that the Janney coupler was the original coupler of the M. C. B. type. It is also pretty generally known that this has been the most popular and largest used coupler of the type, there having been put in service over 1,250,000 of them. It may not be as well known that the M. C. B. contour lines were originally "scribed" from the Janney coupler, and that the owners of the Janney patents, in a desire to assist in bringing about the introduction of this automatic coupler as the standard of the M. C. B. Association, waived their patent rights which specifically covered the M. C. B. contour lines, and only held to their patent rights so far as the locking mechanism thereof was concerned. The Janney coupler, as it has mostly been applied, was designed for cars of from 40,000 to 60,000 pounds capacity. The recent trend of railway practice has, of course, far outstripped these original calculations, making a stronger device necessary for the present conditions of service with cars of 80,000 to 100,000 pounds capacity, and with locomotives of greatly increased weight and hauling capacity. With the original Janney coupler also the arrangement was when an uncoupling was desired for the trainman to raise the uncoupling lever to unlocked position and fasten it there with a locking bracket attached to the end sill of the car, then after the cars had parted and the uncoupling had been accomplished, it was neces-

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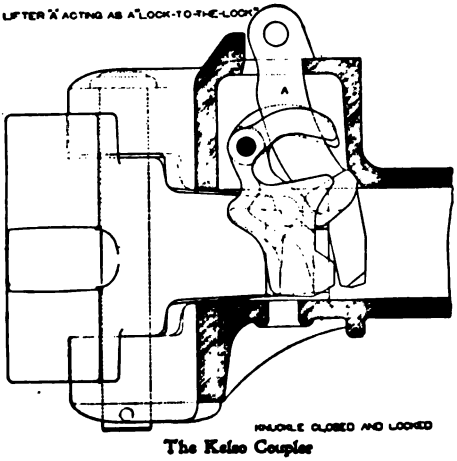


The Kelso Coupler

sary to drop this uncoupling lever from this locked position so that the coupler would be in proper position for coupling up on impact. With the great increase in the density of traffic and the amount of business to be handled in the railroad yards, this feature, which was wholly satisfactory under the conditions which the coupler was originally designed to meet, seems to require some modification so that the trainman would not be required to give the coupler any attention after a "cut off" had been made. To meet both of the above conditions, the manufacturers of the Janney coupler have been for some time perfecting a new design of coupler. In it they have embodied all the desirable features of the Janney coupler in regard to simplicity of design, interchangeability of parts, and quality of material and workmanship, and in addi-



The Kelso Coupler



The Kelso Coupler

tion, the new feature of the "lock-set." This "lock-set" is a part of the mechanism of the coupler which acts automatically when the lock has been raised by the uncoupling lever to the unlocked position to hold it locked in that position, without the necessity of locking up the uncoupling lever, until the cars part. It is not necessary with this device to lock up the lever by a bracket, or for the trainman to hold it up by hand and run along beside the cars until they part, as is the present general practice. The lock-set is claimed to be positive in action, and does not set the lock for coupling until the knuckle has opened 80 per cent. of its range of movement. The same member which acts as the lock-set in the uncoupled position also acts as a "lock-to-

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the-lock" in the coupled position, preventing any possibility of break-in-twos on account of an accidental creeping of the lock. While it is entirely unnecessary, as stated, to hold up the uncoupling lever by hand to make a cut off, if a trainman should inadvertently do it, not knowing that it was unnecessary, he would not get his fingers jammed by the uncoupling lever being snapped down against the end sills either during an uncoupling or a coupling up operation. These couplers are made in open hearth cast steel and of two designs, one with a 5x5-inch neck and the other with a 5x7-inch neck. Many thousands of these couplers are already in service and it is probable that many of your readers have already seen them, and operated them in their daily work.

CORRESPONDENT.

* * *

Advancing Freight Rates.

Newspapers are wrought up over the fact that railroads are advancing freight rates. There is nothing to be wondered at in their advancing rates. In other classes of trade and industry there has been an advance all along the line. The railroad must pay more for coal, for lumber, for ties, for bridge material, for iron and, in fact, for nearly everything that it uses in carrying on its business. Labor, too, in many cases, has been advanced, but not often commensurate with the advance in other lines. That the railroads should desire in these days to show a net profit on their business equal to that of the days when times were not so prosperous is to be expected.

If flour advances, the miller raises the price to the merchant, and he to the consumer, and so with other commodities the public expect it. Then why not expect the railroads to do likewise? It is true that if the railroad raises the grain rate two cents per bushel from the Missouri River points to Chicago that it really means a loss or, properly speaking, a reduction in the price of grain to the producer of an amount equal to the raise in rates, in this case of two cents per bushel. Carrying it farther, the man who furnishes the timber to build wagons and other farm implements advances the price of material. The farmer, i. e., the consumer, pays the bill. He recognizes the necessity and accepts it. Why not be reasonable with the railroads?

One thing that might be done by the railroads to lessen the cry against what is claimed to be their enormous profits, is to eliminate all water from their capitalization and to do business on the actual cash investment. If a railway corporation does show that they are only doing business in a business way there is a general belief that they are holding something back in the way of true earnings, or that they are estimating their profits on capitalization that is altogether too great and, in reality, therefore, the profits are much beyond what they appear to be. The profits in the railroad world do not seem to be as great as in some other lines of business. Steel trust stock, Standard Oil and several others offer more returns to the investor. How much water there is in their capitalization can only be guessed at, and the railroad suffers from their advance the same as any other customer.

The only way the people can be protected from unjust exactions in the way of profits is to legislate the water out of the trusts and corporations, turn the light of publicity on their inner workings, and the result will not only be beneficial for the people, but for the corporations themselves, by establishing them on a business basis of their true value. Under present conditions the railroads have the same right to advance rates that any other concern has to advance prices, and no fault should be found with them for so doing. While the advance in the price of labor might justify an advance in the prices of commodities, the reverse has been the order; the advance in various commodities has forced labor to ask, and often demand, an increase in wage compensation or else suffer the consequent wage reduction from a rise in prices.

Labor's share of the wealth it produces has always been small enough at the best, and labor is justified from an economic standpoint in securing all the compensation possible on the capital invested, and then it will not secure a profit on the investment, let alone on watered stock or fictitious values.

The reason that labor is prosperous at the present time is that the working people are practically all employed at *living* wages. Therefore the calls for aid from the unemployed are not heard, but the advance in the price of labor has not been commensurate with the advance of other things, and it is doubtful if many will be prepared to meet the rainy day that always follows close on the heels of prosperity.

W. L. FRENCH.

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Talks with an Air Brake Instructor

By E. G. Desoe

Dialogue No. 15—Eight-Inch Air Pump.

Student.—I wish that you would please take up the operation of the air pump.

Instructor.—All right, I will do so this afternoon. What is the duty of the air pump?

Student.—As I understand it the duty of an air pump is to store energy in air so that work can be done with it.

Instructor.—That is right. How does it do this?

Student.—I do not know.

Instructor.—It shuts up the free atmospheric air into a much smaller space than it occupies naturally. The energy stored in steam is used to accomplish this result, for the air resists such treatment and it requires power. A portion of the energy in the steam used, therefore, is stored in the air confined. Air confined is constantly trying to expand and occupy the same space which it did previous to being confined. The larger the amount of free air confined in a reservoir the greater the force which it will exert to get out. The confining of air into a smaller space is termed compressing it. The upper part of the pump is the motor, and the lower part the compressor. The working parts are shown in this sectional cut, in heavy black. Can you name them?

Student.—Main steam piston and rod; air piston; main steam valve; reversing piston; reversing valve; reversing valve rod; two discharge air valves, and two receiving air valves.

Instructor.—Do you understand how the up and down movement of the piston is obtained?

Student.—No, sir.

Instructor.—If steam is admitted to the top of the main steam piston *10*, with no pressure on the under side of it, what do you think should happen?

Student.—Why, it will be moved down.

Instructor.—That is right. Now suppose that there is no pressure on the top of the piston, and pressure is admitted to the under side, what will the result be?

Student.—The piston will be moved up again.

Instructor.—That is right, and you understand, then, it is simply necessary to admit steam to one end of the cylinder and when the piston has been moved to the opposite end, exhaust it and admit steam to the other end to obtain the up and down movement of the piston.

Student.—Yes, I understand that steam must be admitted to first one end of the cylinder and then the other to produce the movement necessary, but I do not understand how this admission is accomplished.

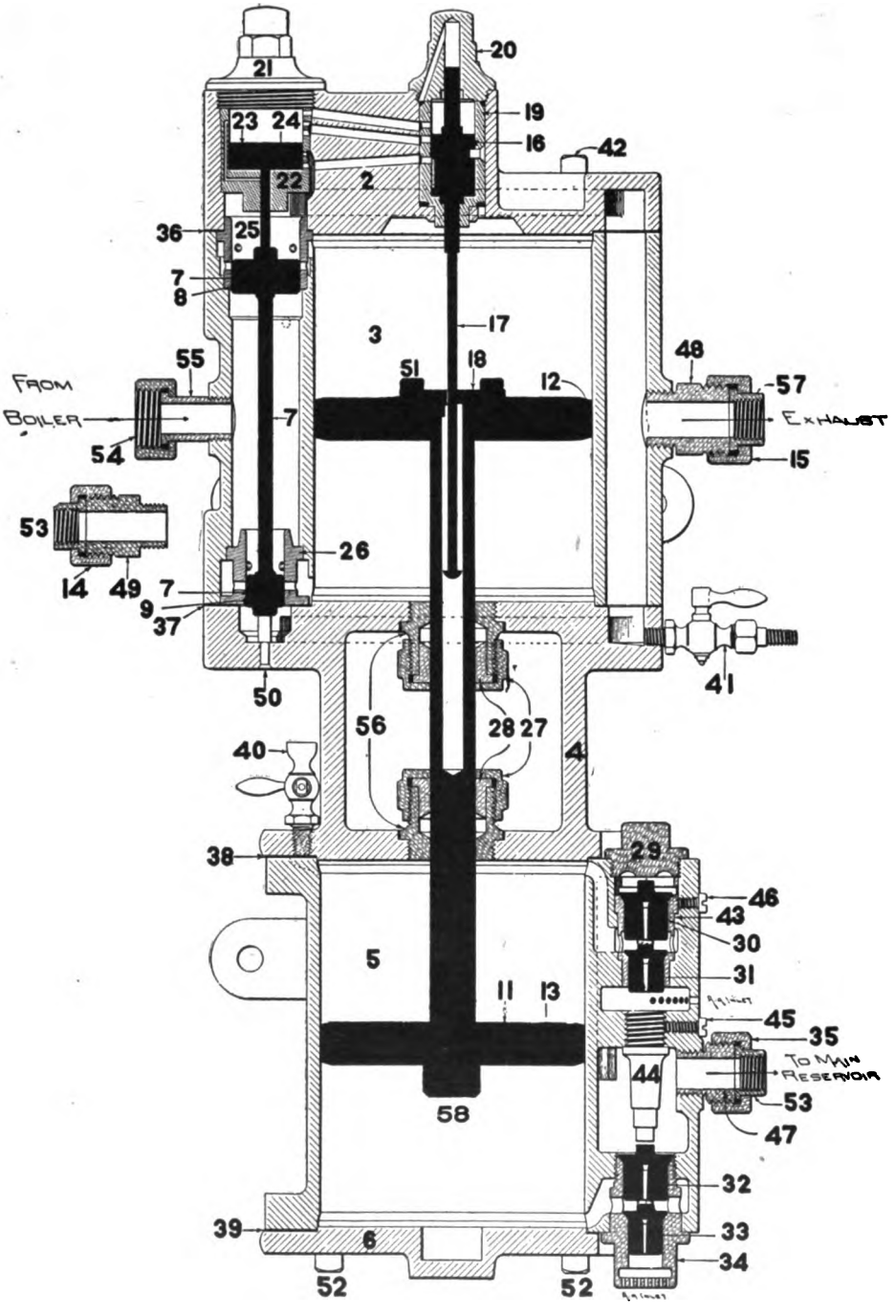
Instructor.—All right, I will try and make it clear to you. The steam chest is the space between the pistons which form the main valve. With the throttle and governor open there should always be a pressure of steam in this chamber.

The main valve is 7 in the cut, and is made up of two pistons of different diameters connected together by a rod. The upper one moves in bushing *25* in the cut, and the lower one moves in bushing *26*. Each of these bushings has two series of ports, the upper series in bushing *25* is the exhaust port for the upper end of the cylinder, and the lower series in this bushing is the admission port for this end of the cylinder. The lower series in bushing *26* is the exhaust port for the lower end of the cylinder, and the upper series in this bushing is the admission port for this end of the cylinder. The rod to which the pistons are connected is of such length that the admission or exhaust port, in both bushings, can not be open at the same time. When the admission port in one bushing is open the exhaust port in the other bushing must also be open. The main steam valve, then, controls the admission and exhaust of steam to the cylinder. Do you understand that pistons of different diameters have different power to move with the same number of pounds pressure acting on them, as indicated by a gauge?

Student.—I have been told so, but I do not understand about it.

Instructor.—Pressure indicated by a gauge is the force acting on every square inch of surface which the steam is in contact with. Supposing that we have two pistons that are square, one 2 inches square and the other 4. If we had weights of 100 pounds each, oblong in form, and one inch square at the end, we would be able to stand just 16 of them on the 4-inch piston, and these weights would be equal to a force of 1,600 pounds acting on that piston. On the 2-inch piston we are only able to stand 4 of these

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EIGHT-INCH AIR PUMP

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Eight-Inch Air Pump.

2. Top head, complete.
3. Steam cylinder, complete.
4. Center piece, complete.
5. Air cylinder, complete.
6. Air cylinder head.
7. MAIN VALVE, complete.
8. Upper main valve packing ring.
9. Lower main valve packing ring.
10. STEAM PISTON AND ROD.
11. AIR PISTON, complete.
12. Steam piston packing ring.
13. Air piston packing ring.
14. Three-fourths inch steam pipe union nut.
15. One-inch exhaust pipe union nut.
16. REVERSING VALVE.
17. REVERSING VALVE ROD.
18. Reversing valve plate.
19. Reversing valve bush.
20. Reversing valve chamber cap.
21. Reversing cylinder cap.
22. Reversing cylinder.
23. REVERSING PISTON, complete.
24. Reversing piston packing rings.
25. Upper main valve bush.
26. Lower main valve bush.
27. Packing nut.
28. Packing gland.
29. Upper valve chamber cap.
30. UPPER DISCHARGE VALVE.
31. UPPER RECEIVING VALVE.
32. LOWER DISCHARGE VALVE.
33. LOWER RECEIVING VALVE.
34. Lower valve chamber cap.
35. Three-fourths inch reservoir union nut.
36. Upper steam cylinder gasket.
37. Lower steam cylinder gasket.
38. Upper air cylinder gasket.
39. Lower air cylinder gasket.
40. Air cylinder oil cup.
41. Drain cock.
42. Cylinder head bolt.
43. Valve chamber bush.
44. Discharge valve stop.
45. Valve stop set screw.
46. Chamber bush set screw.
47. Three-fourths inch reservoir union stud.
48. One-inch exhaust pipe union stud.
49. Three-fourths inch steam pipe union stud.
50. Main valve stop.
51. Reversing valve plate bolt.
52. Pump head bolt.
53. Three-fourths inch union swivel.
54. Governor union nut.
55. Governor union stud.
56. Piston stuffing box.
57. One-inch union swivel.
58. Piston rod nut.
59. Cylinder head plug.

weights, which would give a force of only 400 pounds acting on this piston, or one-quarter of that on the 4-inch piston. These weights are equivalent to 100 pounds, as indicated by a gauge, acting on these pistons.

The larger piston is said to have an area of 16 square inches, and the other 4 square inches. The large end of the main valve, which is the upper end, is 2 inches in diameter and, therefore, has 3.1416 square inches area, while the smaller, or lower end, is only 1⅛ inches in diameter, and has only .994 square inches area. With 100 pounds steam pressure acting on these pistons the upper or larger one will have a force of about 300 pounds, while the lower or smaller one will have only about 100 pounds force. It is therefore apparent that when nothing else interferes with it the main valve will be moved up, admitting steam to the upper end of the cylinder and exhausting it from the lower end, and the main piston will be moved down. It is only necessary now to find how the main valve is moved down, for we know if the main valve is moved up and down steam will be admitted and exhausted from the cylinder so as to cause the movement of the main piston. What is that working part, the stem of which rests on top of the main valve?

Student.—The reversing piston.

Instructor.—Should you think from the cut that the diameter of this piston is larger than the upper end of the main valve?

Student.—Yes, I should say it was.

Instructor.—You are right, it is 2⅛ inches in diameter and, therefore, has 3.546 square inches area, and with 100 pounds steam pressure it will have a force of about 350 pounds. The space under the reversing piston is always open to the exhaust so no pressure ever occurs under it. Now supposing there was the same pressure of steam on top of the reversing piston as is between the pistons of the main valve, say 100 pounds, which way do you think the main valve would be moved?

Student.—I should say it will be moved down, as there is about 150 pounds more force to move it down than there is to hold it up.

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Instructor.—That is right, and you understand then all it is necessary to do to have the main valve moved down is to have a pressure of steam on top of the reversing piston, and to have it moved up again exhaust this pressure of steam from the top of the reversing piston?

Student.—Yes, sir; I see that very clearly, but I am just as bad off, for I do not understand how steam is admitted and exhausted from the top of the reversing piston.

Instructor.—The admission and exhaust of this steam is accomplished by the reversing valve, *16*. The chamber containing this valve is always in communication with the chamber between the pistons of the main valve and, therefore, always contains the same pressure of steam; the port connecting these chambers is not shown in this cut. When the valve is moved down to the position shown in the cut, steam is admitted to the top of the reversing piston, and when it is moved up this port is closed, and the cavity in the valve bridges a port leading to the exhaust and the lower of the two ports leading to the top of the reversing piston and, therefore, when the reversing valve is moved up steam is exhausted from the top of the reversing piston. Is it now clear to you how steam may be admitted and exhausted from the top of the reversing piston?

Student.—It is, and I think I know how the reversing valve is moved up and down.

Instructor.—Well, you may explain if you can.

Student.—The reversing valve rod, *17*, is connected to the reversing valve and extends down into the steam cylinder. The steam piston rod is hollow for part of its length so that when the steam piston is moved up the reversing valve rod is inside of the steam piston rod. When the main steam piston has nearly completed its upward stroke the reversing valve plate *18* strikes the shoulder on the reversing valve rod and moves it up with it. When it has nearly completed its downward stroke the reversing valve plate strikes the knob on the end of the reversing valve rod and pulls it along down with it.

Instructor.—That is right, and I think you now understand how steam is admitted to first one end and then the other of the steam cylinder.

Student.—Yes, I think I understand it all right, but I would like to explain the movement through once.

Instructor.—All right, we will start with the main steam piston up and the main valve down, and admit steam to the pump.

Student.—When steam is admitted the main valve will be moved up and steam admitted to the upper end of the cylinder, and the main piston will be moved down. As it nears the lower end of the stroke the reversing valve plate strikes the knob on the end of the reversing valve rod and pulls it with the reversing valve down, admitting steam from the reversing valve chamber to the top of the reversing piston, and the main valve is moved down, admitting steam to the lower end of the cylinder, and the main piston will be moved up.

Instructor.—You did not say what became of the pressure of steam in the upper end of the cylinder and, of course, the piston can not be moved up until that is exhausted.

Student.—That is exhausted when the main valve is moved down by the upper end of the main valve uncovering the upper series of holes in bushing which forms the exhaust port for the upper end of the cylinder. As I was saying, the main piston will now be moved up; when near the end of its upper stroke the reversing valve plate will strike the shoulder on the reversing valve rod and carry it and the reversing valve up with it, exhausting the steam from the top of the reversing piston, and the main valve will again move up opening the exhaust port from the lower end of the cylinder and admitting steam again to the upper end.

Instructor.—Very nicely, indeed. I suppose you understand that there is a piston in the air cylinder, as well as in the steam cylinder, and that when the steam piston is moved up and down the air piston is also moved up and down?

Student.—I understand that the steam and air pistons are connected by the steam piston rod and when one moves the other must also move.

Instructor.—You told me that there are two receiving valves and two discharge valves. Do you know the duty of these valves?

Student.—I do not understand very clearly about them, but suppose that the receiving valves are check valves to prevent the back flow of air from the cylinder to the atmosphere, and that the discharge valves are check valves to prevent the back flow of air from the main reservoir to the air cylinder.

Instructor.—That is a very good idea

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of their duties. As the main piston is moved up air is drawn in by the lower receiving valve, *33*, at the same time the air contained in the upper end of the air cylinder is compressed, and forced by the upper discharge valve *30*, into the main reservoir. When the piston is moved down air is drawn into the upper end of the air cylinder by the upper receiving valve, *31*, and the air contained in the lower end is compressed and forced by the lower discharge valve, *32*, into the main reservoir. The pump, you see, is double-acting, taking in a cylinder full of air, and discharging air, at each up and down movement of the piston.

Student.—I think I now understand how the pump operates. Are the steam and air cylinders of the same diameter?

Instructor.—No, the steam cylinder is 8 inches, and the air cylinder is 7½ inches. The stroke of both is 9¼ inches.

Student.—I understand by that the pump will compress a higher air pressure than there is steam pressure to operate the pump.

Instructor.—That is true, but you must remember that there is a good lot of friction to be overcome, and that all the pressure of steam is not utilized to compress the air.

Student.—I have been told that it is important that the air valves should have a proper lift. Is this important, and if so, what is the proper lift?

Instructor.—In order to obtain the best results it is necessary that the air valves have sufficient lift, and not too much. The receiving valves should have 4-32 of an inch lift, and the discharge valves should have 3-32 of an inch lift.

Student.—What governs the lift of these valves?

Instructor.—The lift of all the valves is determined by the length of the stem. The upper discharge valve stop is the upper valve chamber cap, *29*. The lower discharge valve stop is the discharge valve stop *44*. The stop for the upper receiving valve is the upper discharge valve, and for the lower receiving valve it is the lower discharge valve.

Student.—I am curious to know how much one of these pumps weigh; can you tell me?

Instructor.—These pumps weigh about 300 pounds.

Student.—I have not fired an engine with a 9½-inch pump, but I know a large number of the engines are equipped with this size of pump, and I would like to understand how it operates; will you explain it next time I come up?

Instructor.—I will certainly try and do so.

Movement of Trains

By H. A. Dalby

Latest Revision of the Standard Code.

Forms of Train Orders.

FORM A. FIXING MEETING POINTS FOR OPPOSING TRAINS.

(1.) ——— will meet ——— at ———.

(2.) ——— will meet ——— at ——— ——— at ——— (and so on).

Examples:

(1.) No. 1 will meet No. 2 at Bombay. No. 3 will meet 2d No. 4 at Siam. No. 5 will meet Extra 95 at Hong Kong. Extra 652 North will meet Extra 231 South at Yokohama.

(2.) No. 1 will meet No. 2 at Bombay 2d No. 4 at Siam and Extra 95 at Hong Kong.

Trains receiving these orders will run with respect to each other to the designated points and there meet in the manner provided by the Rules.

FORM B. DIRECTING A TRAIN TO PASS OR RUN AHEAD OF ANOTHER TRAIN.

(1.) ——— will pass ——— at ———.

(2.) ——— will pass ——— when overtaken.

(3.) ——— will run ahead of ——— ——— to ———.

(4.) ——— will pass ——— at ——— and run ahead of ——— ——— to ———.

Examples:

(1.) No. 1 will pass No. 3 at Khartoum.

(2.) No. 6 will pass No. 4 when overtaken.

(3.) Extra 594 will run ahead of No. 6 Bengal to Madras.

(4.) No. 1 will pass No. 3 at Khartoum and run ahead of No. 7 Madras to Bengal.

When under (1) a train is to pass another both trains will run according to

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rule to the designated point and there arrange for the rear train to pass promptly.

Under (2), both trains will run according to rule until the second-named train is overtaken and then arrange for the rear train to pass promptly.

Under (3), the second-named train must not exceed the speed of the first-named train between the points designated.

FORM C. GIVING A TRAIN THE RIGHT OVER AN OPPOSING TRAIN.

——— has right over ——— ——— to ———.

Examples:

(1.) No. 1 has right over No. 2 Mecca to Mirbat.

(2.) Extra 37 has right over No. 3 Natal to Ratlam.

This order gives the train first named the right over the other train between the points named.

If the trains meet at either of the designated points, the first-named train must take the siding, unless the order otherwise prescribes.

Under (1), if the second-named train reaches the point last named before the other arrives, it may proceed, keeping clear of the opposing train as many minutes as such train was before required to clear it under the Rules.

If the second-named train, before meeting, reaches a point within or beyond the limits named in the order, the conductor must stop the other train where it is met and inform it of his arrival.

Under (2), the regular train must not go beyond the point last named until the extra train has arrived.

When the extra train has reached the point last named the order is fulfilled.

The following modification of this form of order will be applicable for giving a work extra the right over all trains in case of emergency:

(3.) Work Extra ——— has right over all trains between ——— and ——— from ——— m. to ——— m.

Example:

Work Extra 275 has right over all trains between Stockholm and Edinburg from 7 p. m. to 12 midnight.

This gives the work extra the exclusive right between the points designated between the times named.

FORM D. GIVING REGULAR TRAINS THE RIGHT OVER A GIVEN TRAIN.

Regular trains have right over ——— between ——— and ———.

Example:

Regular trains have right over No. 1 between Moscow and Berlin.

This order gives to regular trains receiving it the right over the train named in the order, and the latter must clear the schedule times of all regular trains, as if it were an extra.

FORM E. TIME ORDERS.

(1.) ——— will run ——— late ——— to ———.

(2.) ——— will run ——— late ——— to ——— and ——— late ——— to ———, etc.

(3.) ——— will wait at ——— until ——— for ———.

Examples:

(1.) No. 1 will run 20 min. late Joppa to Mainz.

(2.) No. 1 will run 20 min. late Joppa to Mainz and 15 min. late Mainz to Muscat, etc.

(3.) No. 1 will wait at Muscat until 10 a. m. for No. 2.

(1) and (2) make the schedule time of the train named, between the stations mentioned, as much later as stated in the order, and any other train receiving the order is required to run with respect to this later time, as before required to run with respect to the regular schedule time. The time in the order should be such as can be easily added to the schedule time.

Under (3) the train first named must not pass the designated station before the time given, unless the other train has arrived. The train last named is required to run with respect to the time specified, as before required to run with respect to the regular schedule time of the train first named.

FORM F. FOR SECTIONS.

——— will display signals ——— to ——— for ———.

Examples:

Eng. 20 will display signals and run as 1st No. 1 London to Paris.

No. 1 will display signals London to Dover for Eng 85.

2d No. 1 will display signals London to Dover for Eng 90.

This form may be modified as follows:

Engs. 70 85 and 90 will run as 1st 2d and 3d No. 1.

Engs. 70 85 and 90 will run as 1st 2d and 3d No. 1 London to Dover.

Under these examples the engine last named will not display signals.

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For annulling a section:

Eng. 85 is annulled as 2d No. 1 from Chatham.

If there are other sections following add:

Following sections will change numbers accordingly.

The character of a train for which signals are displayed may be stated. Each section affected by the order must have copies, and must arrange signals accordingly.

FORM G. EXTRA TRAINS.

(1.) Eng. ——— will run extra ——— to ———.

(2.) Eng. ——— will run extra ——— to ——— and return to ———.

Examples:

(1.) Eng. 99 will run extra Berber to Gaza.

(2.) Eng. 99 will run extra Berber to Gaza and return to Cabul.

A train receiving this order is not required to protect itself against opposing extra trains, unless directed by order to do so, but must keep clear of all regular trains, as required by rule.

(3.) Eng. ——— will run extra leaving ——— on ——— as follows with right over all trains.

Leave ———.
" ———.
Arrive ———.

Example:

(3.) Eng. 77 will run extra leaving Turin on Thursday Feb 17th as follows with right over all trains:
Leave Turin 11:30 p. m.
" Pekin 12:25 p. m.
" Canton 1:47 a. m.
Arrive Rome 2:22 a. m.

This order may be varied by specifying the kind of extra and the particular trains over which the extra shall or shall not have the right. Trains over which the extra is thus given the right must clear the time of the extra ——— minutes.

FORM H. WORK EXTRA.

(1.) Work extra ——— will work ——— until ——— between ——— and ———.

Examples:

(1.) Work extra 292 will work 7 a. m. until 6 p. m. between Berne and Turin.

The working limits should be as short as practicable, to be changed as the progress of the work may require. The above may be combined, thus:

(a.) Work extra 292 will run Berne to Turin and work 7 a. m. until 6 p. m. between Turin and Rome.

When an order has been given to "work" between designated points, no other extra shall be authorized to run over that part of the track without provision for passing the work extra.

When it is anticipated that a work extra may be where it can not be reached for orders, it may be directed to report for orders at a given time and place, or an order may be given that it shall clear the track for (or protect itself after a certain hour against) a designated extra by adding to (1) the following words:

(b.) And will keep clear of (or protect against) Extra 223 south between Antwerp and Brussels after 2:10 p. m.

In this case, extra 223 must not pass the northernmost point before 2:10 p. m., at which time the work extra must be out of the way, or protected (as the order may require) between those points.

When the movement of an extra over the working limits can not be anticipated by these or other orders to the work extra, an order must be given to such extra, to protect itself against the work extra, in the following form:

(c.) Extra 76 will protect against work extra 95 between Lyons and Paris.

This may be added to the order to run extra.

A work extra when met or overtaken by an extra must allow it to pass.

When it is desirable that a work extra shall at all times protect itself while on working limits, it may be done by adding to (1) the following words:

(d.) protecting itself.

A train receiving this order must, whether standing or moving, protect itself within the working limits in both directions in the manner prescribed by Rule 99.

Whenever an extra is given orders to run over working limits it must at the same time be given a copy of the order sent to the work extra.

To enable a work extra to work upon the time of a regular train, the following form may be used:

(e.) Work extra 292 will protect against No. 55 between Berne and Turin.

A train receiving this order will work upon the time of the train mentioned in the order, and protect itself against it as prescribed by Rule 99.

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The regular train receiving this order must run, expecting to find the work extra protecting itself within the limits named.

FORM J. HOLDING ORDER.

Hold ——— at ———.

Examples:

(1.) Hold No. 2 at Berlin.

(2.) Hold all eastbound trains at Berlin.

This order will be addressed to the operator and acknowledged in the usual manner. It must be respected by conductors and enginemen of trains thereby directed to be held as if addressed to them.

When a train has been so held it must not proceed until the order to hold is annulled, or an order given to the operator in the form:

"——— may go."

Form J will only be used when necessary to hold trains until orders can be given, or in case of emergency.

FORM K. ANNULLING A REGULAR TRAIN.

(1.) ——— of ——— is annulled ——— to ———.

(2.) ——— due to leave ——— ——— is annulled ——— to ———.

Examples:

(1.) No. 1 of February 29th is annulled Alaska to Halifax.

(2.) No. 3 due to leave Naples Saturday, February 29th is annulled Alaska to Halifax.

The train annulled loses both right and class between the stations named and must not be restored under its original number between those stations.

FORM L. ANNULLING AN ORDER.

"Order No. ——— is annulled."

If an order which is to be annulled has not been delivered to a train, the annulling order will be addressed to the operator, who will destroy all copies of the order annulled but his own, and write on that:

Annulled by Order No. ———.

Example:

Order No. 10 is annulled.

An order which has been annulled must not be reissued under its original number.

In the address of an order annulling another order, the train first named must be that to which right was given by the order annulled, and when the order is not transmitted simultaneously to all concerned, it must be first sent to the point at which that train is to receive it and the required response made, before the order is sent for other trains.

FORM M. ANNULLING PART OF AN ORDER.

That part of Order No. ——— reading ——— is annulled.

Example:

That part of Order No. 10 reading No. 1 will meet No. 2 at Sparta is annulled.

In the address of an order annulling a part of an order, the train first named must be that to which right was given by the part annulled, and when the order is not transmitted simultaneously to all concerned, it must be first sent to the point at which that train is to receive it, and the required response made, before the order is sent for other trains.

FORM P. SUPERSEDING AN ORDER OR A PART OF AN ORDER.

This order will be given by adding to prescribed forms, the words "instead of ———."

(1.) ——— will meet ——— at ——— instead of ———.

(2.) ——— has right over ——— ——— to ——— instead of ———.

(3.) ——— will display signals for ——— ——— to ——— instead of ———.

Examples:

(1.) No. 1 will meet No. 2 at Hong Kong instead of Bombay.

(2.) No. 1 has right over No. 2 Mecca to Medina instead of Mirbat.

(3.) No. 1 will display signals for Eng. 85 Astrakhan to Teheran instead of Cabul.

An order which has been superseded must not be reissued under its original number.

Rules for Double Track.

Time-Tables.

D-5. Not more than two times are are given for a train at any station; where one is given, it is, unless otherwise indicated, the leaving time; where two, they are the arriving and the leaving time.

Unless otherwise indicated, the time applies to the switch where an inferior train enters the siding; where there is no siding it applies to the place from which fixed signals are operated; where there is neither siding nor fixed signal, it applies to the place where traffic is received or discharged.

Schedule passing stations are indicated by figures in full-faced type.

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Both the arriving and leaving time of a train are in full-faced type when both are passing times, or when one or more trains are to pass it between those times.

When a train takes a siding, extending between two adjoining telegraph stations, to be passed by one or more trains, the time at each end of the siding will be shown in full-faced type.

When there are one or more trains to pass a train between two times, attention is called to it by ———.

NOTE TO RULE *D*-5.—The Committee recommends that each company adopt such method as it may prefer in filling the blank.

Train Signals.

D-17. The head-light will be displayed to the front of every train by night, but must be concealed when a train is standing to meet trains at the end of double track or at junctions.

Movement of Trains.

D-83. A train must not leave its initial station on any division, or a junction, until it has been ascertained whether all superior trains due have left.

D-86. An inferior train must keep out of the way of a superior train, and clear its time at least five minutes.

D-91. Unless some form of block signals is used, trains must keep at least five minutes apart, except in closing up at stations.

NOTE TO RULE *D*-91.—The Committee recommends that where greater clearance is necessary, Rule *D*-91 should allow a clearance of TEN minutes or more.

D-93. A regular train which is delayed, and falls back on the time of another train of the same class, will proceed on its own schedule.

D-97. Work extras will be assigned working limits. Within these limits such trains must move with the current of traffic unless train orders otherwise direct.

D-101. If a train should part while in motion, trainmen must, if possible, prevent damage to the detached portions. The signals prescribed by Rules *D*-12 *(d)* and *D*-14 *(f)* must be given, and the front portion of the train kept in motion until the detached portion is stopped.

The front portion will then go back, to recover the detached portion, running with caution and following a flagman. The detached portion must not be moved or passed until the front portion comes back.

The front portion must give the train-berted signal to trains running in the opposite direction. A train receiving this signal from a train on the opposite track must stop and then proceed with caution until the detached portion of the train has been passed. When a train breaks down so it may obstruct the opposite track, trains on the opposite track must be stopped.

D-151. Trains must keep to the ———, unless otherwise provided.

D-152. When a train crosses over to, or obstructs the other track, unless otherwise provided it must first be protected as prescribed by Rule *D*-99 in both directions on that track.

D-153. Trains must use caution in passing a train receiving or discharging passengers at a station, and must not pass between it and the platform at which the passengers are being received or discharged.

Forms of Train Orders.

D-FORM E. TIME ORDERS.

(1.) ——— will run ——— late ——— to ———.

(2.) ——— will run ——— late ——— to ——— and ——— late ——— to ——— etc.

Examples:

(1.) No. 1 will run 20 min. late Joppa to Mainz.

(2.) No. 1 will run 20 min. late Joppa to Mainz and 15 min. late Mainz to Muscat, etc.

(1) and (2) make the schedule time of the train named, between the stations mentioned as much later as stated in the order, and any other train receiving the order is required to run with respect to this later time, as before required to run with respect to the regular schedule time. The time in the order should be such as can be easily added to the schedule time.

———

D-FORM G. EXTRA TRAINS.

(1.) Eng. ——— will run extra ——— to ———.

(2.) Eng. ——— will run extra ——— to ——— and return to ———.

Examples:

(1.) Eng. 99 will run extra Berber to Gaza.

(2.) Eng. 99 will run extra Berber to Gaza and return to Cabul.

A train receiving this order must keep clear of all regular trains and of extra trains having right over it, as required by rule.

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(3.) Eng. ——— will run extra leaving ——— on ——— as follows with right over all trains.

Leave ———.
" ———.
Arrive ———.

Example:

(3.) Eng. 77 will run extra leaving Turin on Thursday Feb. 17th as follows with right over all trains:
Leave Turin 11:30 p. m.
" Pekin 12:25 a. m.
" Canton 1:47 a. m.
Arrive Rome 2:22 a. m.

This order may be varied by specifying the kind of extra and the particular trains over which the extra shall or shall not have the right. Trains over which the extra is thus given the right must clear the time of the extra ——— minutes.

D-FORM H. WORK EXTRA.

Eng. ——— will work extra ——— until ——— between ——— and ———.

Example:

Eng. 292 will work extra 7 a. m. until 6 p. m. between Berne and Turin.

This form of order must be combined with one of the following additions:

(1.) "On (eastward) track."
"On (westward) track."
"On (eastward and westward) track."

Under (1) the Work extra will protect on the track or tracks named as prescribed by Rule *D*-99. The time of regular trains must be cleared.

(2.) "On (eastward) track without protecting against extra trains."
"On (westward) track without protecting against extra trains."
"On (eastward and westward) track without protecting against extra trains."

Under (2) protection against extra trains will not be required. The time of regular trains must be cleared.

(3.) "Protecting against (No. 1) or all regular trains."

Under (3) the Work extra can work upon the time of the train or trains named in the order, and must protect against such train or trains as prescribed by Rule *D*-99.

(4.) "Protecting against trains moving against the current of traffic on ——— track."

Under (4) protection must be given against trains which may be moving against the current of traffic on the track or tracks named.

D-FORM R. PROVIDING FOR A MOVEMENT AGAINST THE CURRENT OF TRAFFIC.

——— has right over opposing trains on ——— track ——— to ———.

Example:

(1.) No. 1 has right over opposing trains on No. 2 (or eastward) track Mecca to Mirbat.

A train must not be moved against the current of traffic until the track on which it is to run has been cleared of opposing trains.

Under this order the first named train must use the track specified between the two points named and has the right over opposing trains on that track between those points. Opposing trains must not leave the point last named until the first named train arrives.

An inferior train between the points named moving with the current of traffic in the same direction as the first named train must receive a copy of the order, and may then proceed on its schedule, or right.

This order may be modified as follows:

(2.) After ——— arrives at ——— has right over opposing trains on ——— track ——— to ———.

Example:

After No. 4 arrives at Mecca No. 1 has right over opposing trains on No. 2 (or eastward) track Mecca to Mirbat.

Under (2) the train to be moved against the current of traffic must not leave the first named point until the arrival of the first named train.

D-FORM S. PROVIDING FOR THE USE OF A SECTION OF DOUBLE TRACK AS SINGLE TRACK.

——— track will be used as single track between ——— and ———.

If it is desired to limit the time for such use add (from ——— until ———).

Example.

No. 1 (or westward) track will be used as single track between Mecca and Mirbat.

Adding if desired

from 1 p. m. until 3 p. m.

Under this order all trains must use the track specified between the stations named and will be governed by rules for single track.

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Trains running against the current of traffic on the track named must be clear of the track at the expiration of the time named, or protected as prescribed by Rule *D*-99.

The Standard Code of Train Rules, containing rules for both single and double track, may be obtained of the American Railway Association, 24 Park Place, New York, for 40 cents.

Questions and Answers

The Westinghouse Air Brake.

Answers by F. B. Farmer.

142. Oil for Pump Air Cylinders.—"What is the proper kind of oil for use in air end of pump, considering engine oil and valve oil only?"—*M. O. D.*

Answer.—Valve oil, for the reason that engine oil will not stand the high temperature resulting from compressing the air as high and as rapidly as is generally required.

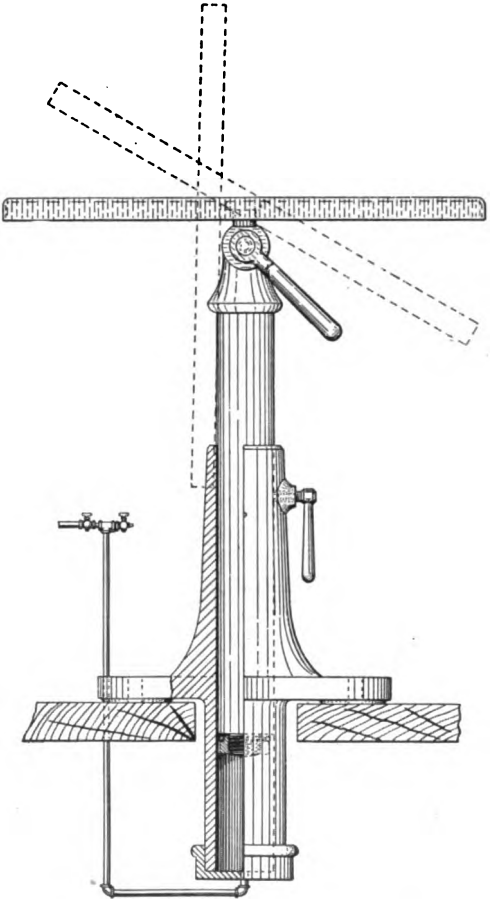
The valve oil should be introduced in small quantities through the cup provided, except such as works down the rod from the swab, and the time between oilings should generally be shorter than it now is. The time should be governed largely by the amount of work done, how rapidly it is performed, the quantity of dust and cinders drawn in and the heating of the air cylinder.

Where adequate lubrication means using more oil, the pump will gum up quicker, but without the oil it will wear much more rapidly or even cut; so the former is the lesser of the two evils. Wasting oil is not recommended, but using just enough to keep the air cylinder lubricated is advised.

Always oil the air cylinder shortly before starting down a long heavy grade, or at any other time just previous to the pump being worked hard and long. Too often this is overlooked.

143. Air Pump Repair Bench and Stand.—"I wish to ask through the columns of your valuable Magazine for a design of stand for attaching air pumps to while being repaired."—*J. A. J.*

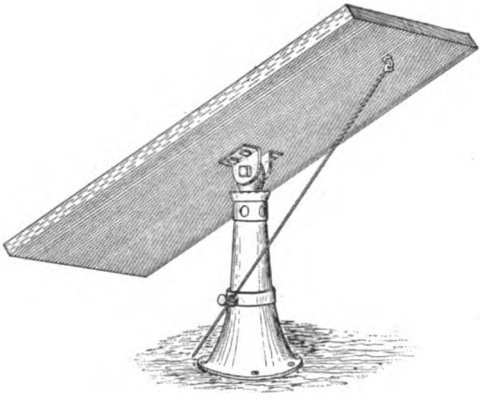
Answer.—Two stands of this character are illustrated in this number, one as used by the Duluth and Iron Range Railroad, and the other by the Duluth, Missaba and Northern Railway. Those having the proceedings of the Air Brake Association will find another very good and simple device of this character illustrated on page 43 of the Air Brake Association Proceedings for 1897.



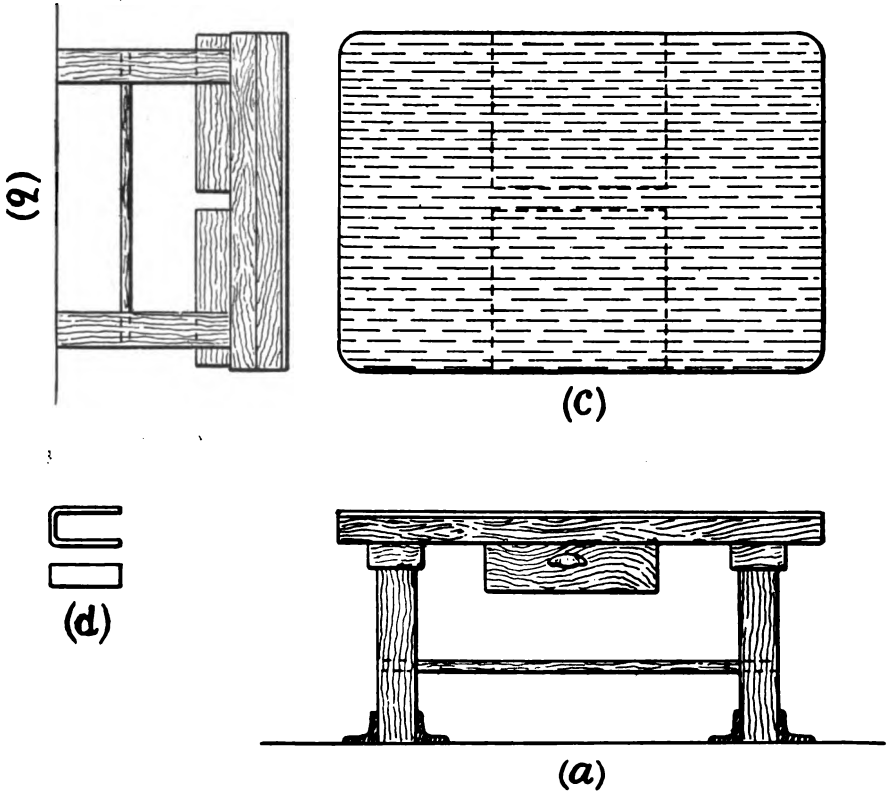
Pneumatic Repair Table for Air Pumps, D. & I. R. R. R.

For those who prefer the pump bench alone, or in addition to the movable stand, an excellent one, used in the St. Paul shops of the Chicago, St. Paul, Minneapolis and Omaha Railway, is illustrated, together with a clamp employed to hold the pump on the bench when turning nuts or bolts.

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Air Pump Repair Stand, D. M. & N. Py.



AIR PUMP REPAIR BENCH, ST. PAUL SHOPS, C., ST. P., M. & O. RY.

(a) Front Elevation. (b) End Elevation. (c) Plan View. (d) Pump lug clamp, for holding pump to bench when turning bolts and nuts. There is one drawer for tools, and one drawer for small repair pails.

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144. Fitting Pump Packing Rings.—"Please advise the quickest and best method of fitting packing rings of air pump."—*J. A. J.*

Answer.—This question was submitted to three men of recognized ability and long experience in this work. As might be supposed, their recommendations were practically the same and are as follows:

First, it is preferable to do this work in the repair room and, therefore, pumps needing it should be replaced when practicable.

On one road a record is kept of cylinder sizes; also, extra steam and air pistons with rings fitted to the grooves and to cylinders to suit the pistons, a record of cylinder diameters being kept, are carried in readiness for quick repairs. This leaves little more than slightly filing the new rings open to make them fit.

The piston grooves should be trued up to the rings and a neat working fit assured. This is important.

If there is any shoulder at the end of the cylinder, remove it. File the rings open until they will lap about ⅛-inch or a little less when in the cylinder. Using lampblack and oil on the cylinder wall, mark and fit the rings until a true bearing is obtained all around; then file the ends until the rings will just pass without binding at the smallest point.

A fairly true cylinder is essential for making a satisfactory fit. Particularly with the air end of pumps in heavy service, it does not pay to fit rings to cylinders 1-32 inch or more out of true. One repairman who has some pumps in particularly heavy service says he has found it pays to bore the air cylinders of such when 1-64 inch out of true.

Another undesirable feature of doing this work on the locomotive is the difficulty of insuring adequate lubrication, so as to prevent cutting, while the rings are wearing to the perfect fit obtained only with use, but which can easily be assured while breaking the pump in on the testing rack.

All such work should be tested, not only to determine that the results are satisfactory, but as a means of education. By observing and noting the air cylinder condition after repairs the test will, by comparing one case with another, soon teach the repairman what is essential to insure satisfactory results. This feature will be found explained elsewhere in this issue.

145. Stopping Distance.—"How far should it take to stop a three-car passenger train running 6 miles per hour, track level, rail dry, coaches equipped with quick action brakes, engine and tender with plain triples and no brake on engine truck? Please give the rule for making the calculation. In the above instance suppose the brakes were set in the emergency and no sand used."—*J. J. C.*

Answer.—Calculating the distance required to stop a train is, at the best, unsatisfactory, particularly where there is no reliable data of stops made by a similar train. So far as the writer has been able to learn, there is no data below 20 miles per hour, and even at this speed it is for a longer train, greatly increasing the unreliability of an estimate such as requested.

A computation once made by probably the best authority on this subject was for a four-car train and gave the distance for 10 miles per hour as 35 feet. This was based on each car, the tender and engine being leveraged properly and brakes in good order, but no engine truck brake. He stated, at the same time, that a shorter train would greatly alter the results and that no estimate of value could be made for lower speeds owing to the coefficient of friction rising so rapidly.

To arrive at the figures given he had to use the results of brake shoe tests made by the Master Car Builders' Association, the main purpose of these being to determine the frictional values of various types and makes of brake shoes. These tests were made on a special machine in a shop, the one now at Purdue University.

The brake shoe friction is but one of the several variable factors and, as illustrating how it alone can affect the results, in some road tests once made where all other conditions were the same, a change in brake shoe metal alone doubled the stopping distance.

By far the better plan is to make a test stop, or several if possible, with the same train and at the place in question; or, if this can not be done, with a similar train.

Where the speed in question was low the tests should also be made at such speeds, but from 20 miles per hour up, a close approximation can be obtained for one speed where the distance that was required at another speed, but all else the same, is known. The rule is as follows:

Multiply the known distance by the square of the speed for which the proportionate distance is desired and divide the product by the square of the speed at which the known stop was made.

As an example, assume that a train at 20 miles per hour was stopped in 102 feet.

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How far would be required at 41 miles per hour?

Square of 20 = 400
Square of 41 = 1681

$$\frac{1681 \times 102}{400} = 428 \text{ feet.}$$

The foregoing rule and example are from The Westinghouse Air Brake Company's old instruction book.

The New York Air Brake.

Answers by J. P. Kelly.

132. Locating Broken Tappet Rod in Duplex Pump.—"If the duplex pump should stop working on account of a broken tappet rod while on the road, which would be the surest and quickest way to tell which one was broken?"—*P. H. B.*

Answer.—When the duplex pump is started from rest, the low pressure piston always makes the first stroke, moving from the lower end of its cylinder to the upper. If the tappet rod should be broken in the low pressure side, the slide valve on this side, which controls the admission of steam to, and exhaust of steam from, the high pressure side, would not be moved; hence, the high pressure piston would remain at rest in the lower end of its cylinder, and also, because of its not moving the slide valve under it, which controls the admission of steam to, and exhaust of steam from, the low pressure side, the low pressure piston would not be moved down, and, therefore, this piston would stop at the upper end of its stroke, and remain at rest.

If it is the tappet rod in the high pressure side that is broken, then, after the low pressure piston has completed its up-stroke, the high pressure piston will make its up-stroke, but as it will not move its slide valve, no steam will be admitted to the upper end of the low pressure cylinder and the low pressure piston can not make its return stroke.

Hence, it makes no difference on which side the tappet rod may be broken, the low pressure piston will always stop after making the up-stroke and will always be found in the upper end of its cylinder; the high pressure piston will be found in the upper or lower end of its cylinder, depending upon which side has the broken tappet rod.

From the above, it will be seen that if the pump stops on account of a broken tappet rod, the high pressure piston remaining in the lower end of its cylinder, it will be the tappet rod in the low pressure side that is broken; and if the pump stops, the high pressure piston remaining at the top of its cylinder, it is the tappet rod in the high pressure cylinder that is broken.

Therefore, when the duplex pump stops, the quickest and surest way to determine which cylinder the trouble is in is to remove the oil cup from the high pressure air cylinder head and look into the cylinder to see whether the high pressure piston is at the top or at the bottom of the cylinder.

Before removing the oil cup, however, it should be known that steam is being admitted properly to the pump, and that the pump governor is not restricting the supply. This may be easily determined by opening the drain cock in the steam head and observing the quantity of steam and the force with which it issues, that escapes from it.

If a piece of wire about the length of the air cylinder be handy, that will go through the opening in the oil cup cock, then the oil cup need not be removed, as by opening the plug cock and inserting the wire through the oil cup the location of the air piston may be determined.

The above method of determining which tappet rod is broken holds good whether the pump has just been started and stops, or stops after working some time, and applies to a loose tappet plate as well as to a broken tappet rod.

133. Diaphragm Leaking in Duplex Governor.—"When engines are equipped with the duplex governor, if the diaphragm valve leaks in either pressure top, will it not have the same effect upon the working of the pump governor as if there was but one pressure top on it, having a leaky diaphragm air valve in it?"—*J. E. D.*

Answer.—With the duplex governor, whether used with the "single" or the "double pressure method," if one of the diaphragm air valves leaks it will permit air to flow down upon the governor piston the same as though there was only a single pressure top upon the governor, and the air that leaks in upon the governor piston, if more than the small vent port in the governor piston chamber can relieve, will have a tendency to form a pressure in the governor piston chamber that will force the piston together with the steam valve part way down, throttling the steam somewhat and tending to make the governor less sensitive to variations in train pipe pressure; and will, therefore, have the same effect upon the pump as though it were a leaky diaphragm valve in a single top governor.

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134. Test to Determine Which Diaphragm Air Valve is Leaking in the Duplex Governor.—"How should I test to find out which diaphragm air valve is leaking in the duplex governor?"—*J. E. D.*

Answer.—If either or both diaphragm air valves leak, there will be a continuous blow at the small vent port from the chamber above the governor piston, to the atmosphere. To determine in which pressure top the diaphragm is leaking it will be necessary to take into consideration the way in which the duplex governor is piped. If it is piped for the "single pressure method," as already illustrated and described in the January, 1902, number of the Firemen's Magazine, stop the pump, close the cut-out cock under the brake valve, place the handle of the valve in emergency position and note if the blow continues at the vent port in the governor body. If the blow ceases, it is an indication that the trouble is with the diaphragm in the train pipe pressure top, but if it continues it indicates that the diaphragm valve in the main reservoir pressure top is at fault.

If the diaphragm valve in the main reservoir pressure top is leaking, it is possible that this test might not indicate for a certainty that the diaphragm air valve in the train pipe pressure top was not leaking also; but it is rarely that both leak at the same time. However, after the diaphragm air valve in the reservoir pressure top has been made tight, a continuance of the blow of air at the vent port, after pressure was restored in the train pipe pressure top, would indicate that the diaphragm in the train pipe pressure top is leaking.

If the duplex governor is piped for the "double pressure method," illustrated in the January, 1902, number of the Firemen's Magazine, that is, with branch pipes leading one to each pressure top with a single connection to the brake valve at the usual point in front of the excess pressure valve, and a stop cock in the branch pipe leading to the low pressure governor top, to test for leaky diaphragm air valves, close the stop cock in the branch pipe leading to the low pressure top. If the blow ceases at the vent port, it indicates that the diaphragm air valve in the low pressure top is leaking; if it does not cease, it indicates that the diaphragm air valve in the high pressure top is leaking.

135. Hot Potash for Duplex Pump.—"Can a hot solution of potash and lye be worked through the duplex pump for purposes of cleaning?"—*E. K.*

Answer.—Yes; the potash should be hot and the pump should be run slowly, so that the liquid may have time to pass through the various valves without causing the pump to pound.

At the same time that the pump is being cleaned with the potash, the discharge pipe should be disconnected from the main reservoir, if the latter is located on the engine; or, if it is located on the tender, the hose couplings for the discharge pipe between the engine and tender should be parted, and the hose in that portion of the discharge pipe connected to the pump should be removed in order to prevent the discharged potash from coming in contact with the rubber. Potash and lye are bad for leather and rubber.

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Locomotive Running and Repairs

Answers by W. G. Wallace.

63. Engine Rating.—"If a 19x26-inch ten-wheel engine is rated to pull 1,000 tons over a division, how much should an 18x 26-inch engine be able to pull over the same division? It will be understood that both engines are the same in every particular except the difference in the diameter of the cylinders."—*J. C.*

Answer.—As J. C. has neglected to state the boiler pressure and the diameter of the driving wheels, we will assume that the wheels are sixty inches, including tire, and that the boiler pressure is 190 pounds. Taking 85 per cent. of the boiler pressure as the effective cylinder pressure and using the formula, we will work out an example which will illustrate the method used for both engines and obtain the tractive power of each.

C = diameter of cylinders in inches.
S = length of stroke in inches.
P = mean effective pressure.
D = diameter of drivers in inches.

We have $\frac{C^2 \times S \times P}{D} = T$ or tractive force developed.

$19 \times 19 = 361$. $361 \times 26 = 9{,}386$. 9,386 multiplied by 85 per cent. of 190, or $9{,}386 \times 161.5 = 1{,}515{,}839$. This divided by 60 (diameter of the wheel in inches) = 25,263 pounds, the tractive force developed by the 19 x 26-inch engine which is rated at 1,000 tons. Using the same method to obtain the tractive force of the 18 x 26-inch engine, we have a tractive force of 22,674 pounds.

Now, to obtain the rating for the 18-inch engine, we divide the tractive force or power of the 19-inch engine by the number of tons that it is rated at to determine the resistance in pounds per ton, and find that 25,263 divided by 1,000 =

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25.26 pounds power used per ton. Then it is clear that the 18-inch engine, with 22,674 pounds tractive force, should pull as many tons as 25.26 is contained in 22,674, which equals 898 tons, or the rating for the 18-inch engine. The 18-inch engine would have the advantage on account of having a greater heating surface to her cylinder volume and in service would stay hot easier and stand harder hitting in taking a run for a hill. The above would be a fair comparable rating in the absence of a practical test.

Railway Club Proceedings

A Railroad in the Far North.

MR. J. R. VAN CLEVE: The head of Lynn Canal, the extreme northern limit of what is known as "The Inland Passage," is the logical starting point for this rail connection. It is as near the head of navigation of the Upper Yukon as salt water can take one. All that could be desired in the way of a deep and sheltered harbor marks the entrance to the Skagway Valley, the key to the best route through the mountain range which separates the head waters of the Yukon from tide water, known as the White Pass. Several surveys were made before sufficient distance was found for a feasible grade; but when a survey was finally made which demonstrated that twenty miles could be had to make this climb of 2,940 feet, on a maximum grade of 3.9 per cent., little time was lost in financing the undertaking and getting to work. The grading outfit reached Skagway May 27, 1898, and, as a sort of initiation fee, paid $500 for the privilege of pitching camp on the only spot suitable for such a purpose, title to the ground not entering into this transaction. Skagway has so far found room for itself in an acute-angled triangle, whose base, some 3,000 feet in length, is the water-front at the foot of this valley; one side, the east wall of the valley; the remaining side, the Skagway River, which, as a last act, cuts this much-chopped-up little valley in two on the bias. The altitude of this triangle is a mile and a half, and this first camp was pitched at its apex. Our present shops are located on the site of this first camp. The view which I have marked No. 1 probably gives as good an idea of the town as could be had from one view-point. It shows but a corner of the wharf over which virtually all business is now done, and back of which the railroad has freight tracks. No. 2 shows about half of this wharf, and gives a very good idea of its appearance during the season of river navigation. The natural route from "Camp 1" is along the east side of the river, which for some little distance has hugged the east wall of the valley; but a wagon road, operated as a toll road, occupied the only available ground for such a purpose for a distance of about three miles, with a price set upon its right of possession which forced the railroad to cross the river at this point, recrossing again as soon as it could be done without interfering with the toll road. Our railroad, now some five miles from tide-water, with no opportunity thus far to make any material progress skyward, lost no further time in that direction, but soon got above and beyond any further danger of conflict with the toll road. Good progress was now being made, with every indication that the summit would be reached before winter set in, when a stampede to the Atlin gold fields set in, which in three days carried with it more than a thousand men off the grade, and virtually put a stop to everything. It was well into the winter before men could be had and active work resumed. Notwithstanding this exasperating delay, the track reached the summit of the well-named White Pass on February 18, 1899, having pushed its way through the ruggedest kind of mountain work in our heaviest snow district, this task including the building of thirty-seven bridges, the material for which was in most cases snaked up the mountainside by man power. The fight for a railroad over this pass being thrown into the winter months, furnished a continuous performance for an army of snow shovelers. View No. 3 will give some idea of the magnitude of this undertaking. The lone figure in this picture is standing at one of the storm-swept points in the path made by our rotary plow, which last winter accomplished the task of keeping this mountain open to daily traffic, without a skip, in spite of the fact that, every winter since this road has been in operation,

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the outside papers have brought us word that the "White Pass and Yukon Route" is hopelessly buried in snow and abandoned for the winter, the depths under which reports have us buried ranging from fifty to 200 feet.

While the item of snow is before us, it might be well to state that our snow-bucking outfit consists of a standard-gauge rotary, with its trucks closed in to our three-foot gauge, and two of our heaviest engines to keep it up to its work. This outfit makes daily trips over our mountain district through the winter months, and a duplicate outfit is held here in reserve. Aside from an occasional trip by the rotary to the foot of Lake Bennett, flangers and pilot plows on our road engines take care of the snow north of Bennett, as the station at the head of the lake is called, for, strange as it may seem, the farther north we go, the less snow we encounter. On account of the great amount of water used by the rotary in heavy snow, as compared with that used by its pushers, the injector piping on the engines assigned to rotary service has been so arranged that their injectors can put water either into their own boilers or into the tender ahead. This arrangement permits the rotary to work as long as there is water in the outfit, which arrangement has in many cases cut out a stop for water by the snow-melting process, which in some of our storms might easily mean a tie up. * * *

But, to get back to construction work: The completion of the track to Lake Bennett marked the end of another chapter of trying delays, including a laborers' strike. In spite of these delays, no opportunity to push the work at every point was overlooked, a large portion of the work on the Canadian side also being done in the winter. Although track laying north of White Pass Summit was not begun until June 21st, Lake Bennett was reached July 6th, these twenty-one miles of track being laid in sixteen days, in addition to three miles of grading, part of which was rock work. It is hardly necessary to add that every minute of those sixteen nightless days was improved. The train which put the track into Bennett returned to Skagway on the same day, with over a ton and a half or gold dust and 200 passengers glad of a chance to ride on flat cars over the pass, which recalled to the minds of many of them hardships and tests of endurance they had no desire to experience again.

It being apparent that the heavy rock work along Lake Bennett would be the last piece of grade ready for the track, an engine, together with a few flats and enough material for a start at track laying, was put over the lake before the freeze up. Work on the grade north of Caribou Crossing, at the foot of the lake, was begun the latter part of August, and, together with the work along the lake shore, was pushed with vigor all winter. The balance of the material for the track north of Caribou, together with another engine and flats, was taken over the lake the following spring, and on July 8th these forty-two miles were open for traffic. During the seven weeks' wait for the track along the lake shore, the lake was used as a connecting link, and freight began moving into White Horse, the name given to the town created by this new condition of things, and situated at the foot of the rapids from which it takes its name, the rapids which mark the first break in the navigable waters of the Yukon above Dawson. On July 29, 1900, the final connection was made at Caribou Crossing, with ceremonies befitting the driving of the last spike, and through rail service between tide water and the head of unbroken navigation of the Upper Yukon was at last a fact.

The work north of Caribou was comparatively light. What might be called the spectacular feature of this part of the work was the draining of Lewis Lake. The locating engineer conceived the idea of lowering the level of the lake about five feet, to give a better line and to make the work lighter along its shore. It was found that a ditch connecting Lewis with a couple of small lakes about a quarter of a mile away would accomplish this, these small lakes in turn having the Watson River to take care of their surplus. A ditch ten feet wide was decided upon, and, while this was being dug, the question was raised as to the length of time it would take the lake to find its new level. One engineer set the time at three months, and pronounced the ditch too small. The engineer in charge, however, thought it safe to leave something to the action of the water, and decided that a larger ditch would be a needless expense. Subsequent events more than bore him out in this view of the matter, for the nature of the material through which the ditch was dug proved so yielding that this little stream soon became a raging torrent, and the bottom proceeded to drop out of that lake with a celerity fairly dazzling. When the rush was over, such a change was found to have been wrought in

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the topography of the neighborhood that a revision of the map, as well as of the plans of the locating engineer, became the next logical order of business. The new level of the water impounded in the pockets of the lake's former bottom was found to be eighty-one feet below the old level of the lake. No. 5 is a corner of the lake's old bed crossed by the road, and gives a fair idea of the work accomplished by the digging of that little ditch. If a train were to be caught on the bridge to be seen in this picture by a sudden restoration of the water of the lake, it would be entirely submerged. The awe which this act of the "Boston man" inspired in the Indians would have been no more profound had he reversed the current of the Yukon and turned its waters into Lynn Canal.

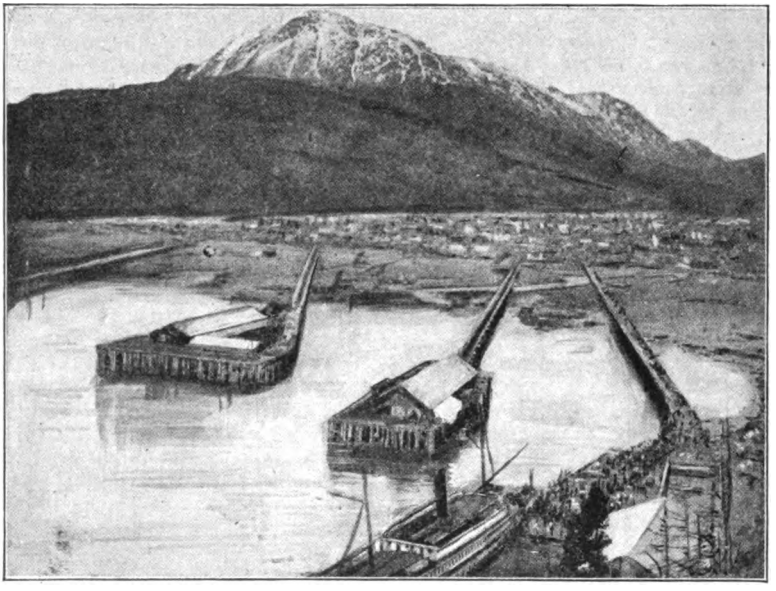


Fig. 1. SKAGWAY, ALASKA

While construction work was being carried on, the question of equipment was, of course, being given attention. The engines for this work were picked up where they could be had the quickest, for there was no dallying between the decision to build and getting to work, and waiting for engines to be built was out of the question. A score of flats were also picked up at second hand, and, while a start was being made toward a shop, a few of the first freight cars were framed in Seattle and sent up here for erection. But little time was lost, however, in getting together the necessary tools and organizing a force sufficient to take care of our running work and to keep up with the demand for freight equipment, which included flat, box, stock and refrigerator cars and coal dumps. With the exception of our baggage cars and an official car, we have so far looked to the outside for our passenger equipment. But our aim has been to make ourselves as independent of the outside world as we consistently could, the wisdom, not to say necessity, of which can readily be seen when it is borne in mind that a thousand miles of water separate us from any possible market. To this end we have included in our modest plant a brass and iron foundry, which provides us with everything in that line entering into the construction of freight cars and into car and locomotive repairs, as well as into the repairs of the fleet of lake and river boats which constitute a part of this route to Dawson and to the Atlin district. With high mountains close at hand on every side to further shorten our all too short winter days, the question of light became an important one. Electricity was decided upon as the best and most reliable substitute for daylight, and,

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our buildings being strung out over more than a mile of territory, including, as they do, the shop and store buildings, hospital, employes' club, general offices, and freight and passenger depots, alternating current was, of course, decided upon, and a 650-light, 1,050-volt alternator was accordingly installed in our engine room. Through our winter months this is easily our busiest tool, having scarcely an hour's rest in the twenty-four when clouds overcast our shortest days. Although the mercury along this section of the Alaskan coast is not often to be found below zero, it puts in so much of the winter below the freezing point that ample use is found for all of our exhaust steam in heating our shop buildings. This is very satisfactorily done by the direct system; so, should you make us a call this winter, you will find us comfortably ensconced in warm and light quarters.

Early steps were taken to provide suitable power. The first installment of new engines consisted of two 95,000-pound, consolidation, Vauclain compounds. These were followed by one 95,000-pound and four 90,000-pound ten-wheelers, and another consolidation weighing 100,000 pounds, the latter six simple. These constitute what we call our heavy power, and for narrow gauge engines they are heavy. * * * The artist rightly calls No. 7 a through freight. If he had located himself a few car lengths further up the hill, and had waited a few moments longer, he would have been able to cover the entire train with his camera, including the rear helper, whose smoke can be seen over the rock cut out of which this train is coming. The train is made up of seventeen cars of 40,000 pounds' capacity (our standard), and is a load for three of our heaviest engines. This picture gives some idea of the general appearance of our freight equipment, as well as a glimpse of the rugged mountains over which this train is climbing. The passenger train just showing up in No. 8 is about five miles from the summit, about 800 feet above the track where it is to be seen along the foot of the mountain which forms the background of this picture. The men in No. 9 have just started the attack upon the granite mountainside, which resulted in the shelf on which the train in No. 8 is to be seen. Like the "Shriner," nothing would induce these men to let go of the rope. The "Swallow's Nest," out of which the Vauclain compound in No. 10 has emerged just in time to have her picture taken, is the only tunnel we have, and is but 250 feet long. Before the completion of the steel cantilever shown in No. 11, a switchback was resorted to as a means of getting around this canyon. A sharp turn toward the head of the canyon was made at the extreme right of the picture. The grade line of the north leg of the switchback can be seen through the bridge. The round, tent-like building to be seen at the north approach keeps the snow off the turntable, on which through engines took out the turn put in them by the switchback. The foundations supporting this bridge are of concrete set upon the solid granite. This is our highest bridge, being 215 feet above the little stream which it spans. No. 12 is a good picture of White Horse as it appeared a year ago. A year, however, has wrought quite a change for the better in its appearance, substantial buildings having taken the place of many of the tents. The boats tied up to the wharf with their noses upstream are loading and waiting their turn to load for Dawson. This picture was taken from across the river opposite the ways where the boats wintering at White Horse are pulled out of the river. No. 13 shows these boats just after going into winter quarters. * * * Without stage service, Dawson would be completely isolated between the closing and opening of river navigation. A 450-mile stage ride in this latitude may not seem very inviting, especially when it is borne in mind that 50° and even 60° below zero are by no means unheard-of temperatures north of White Horse; yet even women and children make this trip with comfort in the dead of winter. While freight trains on the river are not so thick as to be in each other's way, the photographer found no special difficulty in securing No. 15. * * *

I trust I have succeeded, with the help of the photographer, in giving you a glimpse of this railroad and the part it plays in the transportation game as carried on in this far northland. What the future has in store for this vast treasure-house, being neither a prophet nor the son of a prophet, I shall not venture a prediction; that but a start has been made at its exploitation is beyond question; that the white man will not rest until he has gone in and possessed it to the uttermost goes without saying; that the railroad will be there, prepared to do its part, who can doubt? In the meantime, the time which concerns us, this

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hardy pioneer is doing business at the old stand, taking care of the needs of the hour.—Pacific Coast Railway Club.

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First Aid to the Injured.

DR. J. D. MILLIGAN (Chief Surgeon, P. & L. E. Ry.): When we consider that on June 30, 1900, there were employed 972,808 men by the railroads in the United States, that there were 39,643 injured and 2,550 killed, for the year ending June 30, 1900, and that in that statement we mean all who die within twenty-four hours—are declared killed—and all who are disabled to the extent of three days or more are classed as injured, it shows at a glance that there is plenty of room to apply first aid, and also the grim necessity of prompt and efficient application of the same.

Therefore, the adoption of what is known as "First Aid" as applied to railroad service is in conformity to the Standard Systems used by the St. John's Ambulance Association of England and adopted by Germany and nearly every European State, as well as by the New York Society for Instruction in First Aid —a system of education for employes that will enable them to aid the injured intelligently, and which system has reached a standard by many railroads, that compares favorably with the first aid in the military service.

A little knowledge is dangerous, and we find sometimes that the prayer of the injured is not always: Oh, Lord! protect me from mine enemies, but it is: Oh, Lord! save me from my friends—for it does happen that some over-zealous person may in a moment undo what nature is trying to do—and would have succeeded if the case was left alone.

"The first dressing decides the fate of the wounded" was a maxim laid down by Volkman, and it is true that it will never lose its significance—and it is true that much of the argument must be lost when the position is taken that we must make amateur surgeons of our engineers, firemen and conductors; and such other members of the crew as may be designated "Emergency or First Aid Men;" but it has never been shown that such was the purpose; to expect of the laity anything else than to add comfort and safety to the sufferer. And, while it is equally true that these men are not surgeons in any sense, yet they can be properly enlightened so that they can do the right thing, or the simple, necessary thing in the emergency, to relieve suffering, or stop a bleeding wound until the arrival of the

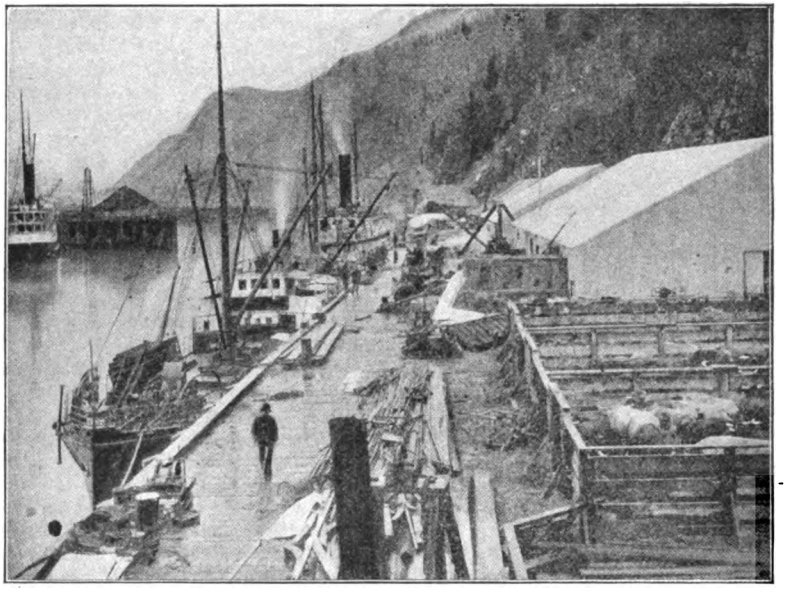


Fig. 2. WHARF SCENE AT SKAGWAY

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surgeon; thereby rendering comfort and safety, which means everything to the sufferer.

As applied to the Pittsburgh and Lake Erie, the institution of the first aid has been in force for about two years, and as yet in its infancy, so far as thorough teaching is concerned, but with that potent fact staring us in the face, we are prepared to say that we find when injury occurs, that the unfortunate victim reaches the surgeon with greater safety to himself, and instead of finding him bloodless, we find the rubber tourniquet properly applied, an antiseptic pad over the wound, and a bandage over it to hold it in place; and should it be a broken limb, a temporary splint applied to keep the broken bones from doing additional injury, by goading the soft part to death from friction, while en route to place of destination.

The marked improvement in the general condition of the injured on their arrival at the hospital has been such that it is now the exception to find a man so exsanquinated that he can not at once be placed on the operating table; while previously, the reverse condition was the rule; to find his life ebbing slowly away, because no one seemed aware that hemorrhage could be safely controlled by properly applied tourniquet, and we feel safe in saying that by the judicious first aid the death rate is much lower and the injured ones made more comfortable, and with these results obtained, we should be encouraged to a more vigorous and thorough effort to secure the most efficient detail and co-operation that can be afforded by the management of the various railroad companies.

Our first aid or emergency box contains bandages, assorted sizes; sublimated gauze, rubber tourniquet, cotton, safety pins and enough to care for two or three injured persons. Our folding stretcher contains two blankets and one rubber blanket, and four splints, assorted. Each caboose and each baggage car has a set of these supplies—each station and telegraph office is similarly supplied. A small handbook has been issued to the men, and a circular has been placed in the hands of the men, entitled "Aid to Memory." The first aid to the injured and the same is herewith attached.

AID TO MEMORY.

First Aid Package.—For small wounds on any part of the body.

Gauze.—For large wounds.

Cotton.—To cover over on top of the gauze.

Rubber Band (Tourniquet).—To fasten around a limb or around the head to stop hemorrhage, particularly in case of crushed limb.

Adhesive Plaster.—To hold dressings, but never to be applied to an open wound.

Cotton Bandages.—To be used over first dressings where there is much bleeding.

Gauze Bandages.—To fasten splints in place and to support light dressings where there is no hemorrhage.

Safety Pins.—To fasten bandages, etc.

1. Don't give a drink of whisky.

2. Don't pour ice or very cold water on wounds.

3. The patient should be placed on his back, with head low, and this position should be continued in transporting.

4. *If the person is suffering from "shock,"* that is, pale, with pinched expression of face, drooping eyelids and cold surface of body, with feeble pulse, give spoonfuls of hot tea or coffee; if this can not be had, teaspoonful of whisky or some other alcoholic stimulant, in a tablespoonful of hot water every ten minutes until five or six doses have been taken. Wrap in a warm blanket and put hot water bottles or heated bricks about the body.

5. *Remove the clothing* from the wounded part by cutting it away. Do not attempt to tear or draw clothing off, as this may further injure the wounded part. Always see the wound and know by your eye just what the nature of it is.

6. *If a limb is crushed or torn* apply over the wound a thick pad gauze, then a large covering or pad of cotton, fastened with several turns of the bandages, handkerchief or an elastic suspender.

7. *Hemorrhage.*—This follows shock and is very rarely severe unless reaction takes place. *Too much stimulation increases hemorrhage*, and for this reason it is best to give only a little stimulant, well warmed, and repeat the dose if reaction is delayed.

Bleeding is of Two Kinds.—First.—Arterial, when the blood comes out bright and red in spurts. Second.—Venous, when the blood is dark and flows in an even stream.

A. *To Stop Hemorrhage.*—Avoid trying to stop bleeding by twisting cords or handkerchiefs around limbs with sticks. When the wound is large and blood comes out in spurts, apply the rubber band tightly just above the wound, previously

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raising the wounded member or part, especially if it be a limb. Be careful to put the band on uninjured flesh (if the limb be crushed) and about three inches above the crushed tissues, else it will slip down and increase the hemorrhage. Be careful to see that the band be firmly hooked and

B. *Venous Bleeding*, which occurs when the wound is shallow (does not go deeper than the skin), as a rule, requires firm pressure over the wound, and especially below it. If the wound be quite small, put a pad of styptic cotton into it and over it and bandage tightly in

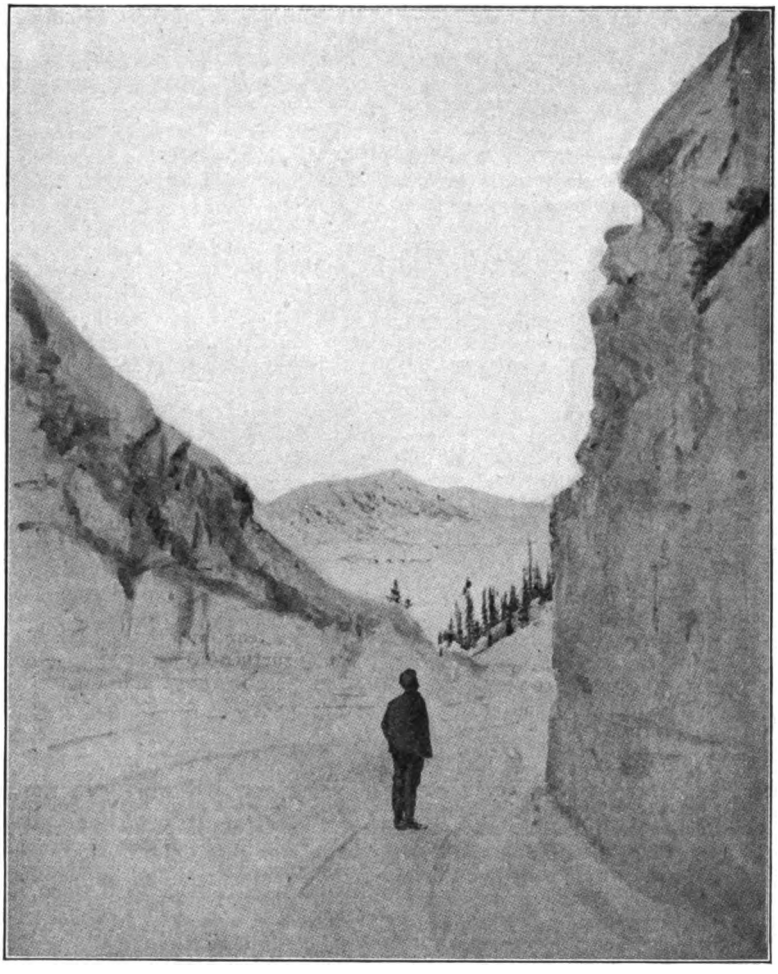


Fig. 3. A SNOW DRIFT REMOVED

fixed before leaving it. Small wounds, even though the hemorrhage be arterial, require only a firm compress of the sublimated gauze, placed immediately over the wound and bandaged tightly in place with one of the muslin bandages. It is best after this to bandage firmly from the extremity of the hand or foot upward to beyond the wound with muslin bandages.

place and then apply a bandage from below upward.

C. *Bleeding from the Head.*—If only the scalp is involved, may also be controlled by drawing the rubber band around the head, encircling it just above the eyebrows. This is very painful, however, and unless the bleeding is severe, it may be controlled by bringing the wounded or torn surface together and applying along

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the wound a thick layer of styptic cotton and over this another layer of absorbent cotton and a tight muslin bandage. It is well to pass the bandage under the chin if the wound be on top of the head, as this holds it firmer and tighter.

8. *After hemorrhage has been controlled*, apply gauze next to the open wound always and never let an open wound remain uncovered longer than absolutely necessary to control the hemorrhage, but remember a soiled or dirty covering is worse than none at all.

9. *If a leg or arm is broken*, straighten it gently and lay on a pillow, then tie the pillow up with several strips of muslin, bandage or splints found in the stretcher; laths or barrel staves, padded with some soft material may be used for this purpose. This should be done before the injured person is moved any distance.

10. *Compound fractures* are fractures accompanied by a wound of the soft tissues at the point of fracture, so that the bone is exposed to the air. In these cases treat hemorrhage and the wound according to the foregoing rules, and then apply splints. If the bones project beyond the skin, remember to bring them back into place by pulling the extremity in the direction of the displacement, until the ends of the fragments are quite free from over-riding. Remember to always cover these wounds with the sublimate gauze and bandage.

11. *Burns.* — Carefully remove the clothing by cutting it off, if the part be clothed, and apply immediately three or four thicknesses of the sublimate gauze (dry, or wet in warm water in which one tablespoonful of the bicarbonate of soda to the quart has been dissolved). As a rule, never attempt to clean burns immediately after they occur. Cover the wounded part immediately, as directed above, and leave the cleansing to the surgeon afterward. Extensive burns are attended with great shock, as a rule, and require *free stimulation*. As the burns are rarely followed by hemorrhage, stimulants may be and should be given in considerable quantities.

12. *Prostration from Excessive Heat.* —In these cases (not sunstroke) the face is pale, lips colorless or blue, breathing slow, pulse slow and very weak. Place the patient on his back, with his head level with his body and loosen clothing. Apply heat to the surface of the body and extremities. Bathe the face with warm water into which a little whisky or alcohol has been poured, and if he can swallow, give the patient an ounce of whisky in as much water.

B. *Prostration from Drinking Too Much Ice Water When Overheated.*—The face is red or even purple, breathing heavy and irregular, pulse irregular. Loosen clothing, place on back, with head slightly elevated. Give hot drinks, apply heat to the spine and the extremities.

13. *Position in Which a Person Should Be Placed After Injury.*—Injuries to the head require that the head be raised higher than the level of the body. In all cases, if practicable, lay the patient on his back, with the limbs stretched out in their natural positions; loosen the collar and waist bands and unless the head be injured, remember to have the head on the same level as the body; do not bolster it up with anything.

14. *To Place a Person on a Stretcher to Carry Him.*—Three persons are necessary to do this; two to act as bearers of the stretcher and one to attend to the injured part. Place the stretcher at the head of the patient, on a line with the body, the foot of the stretcher being nearest the patient's head. One bearer kneels on each side of the patient and joins hands underneath his hip and shoulders with the bearer on the opposite side. The third man attends to the wounded limb or looks after any bandages or splints that may have been applied. The bearers then rise to their feet, raising their patient in a horizontal position, and by a series of side steps bring the patient over the stretcher. He is then lowered gently on it and made as comfortable as possible. One bearer starts off with his left foot and the other with his right; should they keep step the stretcher would roll badly.—Railway Club of Pittsburg.



Checking Train Registers.

MR. G. W. REEDE: Would it be an additional safeguard and less chance for error, as well as a saving of time, for telegraphers at terminal stations to have check of register on proper blank ready, and hand to the conductor of trains affecting his rights? For answer, will say that I do not think it would be an additional safeguard, nor would it save time; in fact, it would introduce an element of danger, for the reason that the terminal telegrapher is a very busy man with his ordinary routine telegraphic duties, and only concerns himself about the movement of trains when called upon by the dispatcher for train-order work, and

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would be more liable to overlook an error on the train register than the conductor, who is thoroughly familiar with the movement of all trains. As a matter of fact, there are only three men who are directly interested in the movement of trains, the conductor, the engineer and the dispatcher, and to allow a conductor to leave a terminal without satisfying himself, by checking the register and asking questions about trains not shown thereon and not affected by his orders, would be extremely dangerous.

We all know that there is more or less delay in getting an inferior class train started, on account of checking and reading of orders; at the same time, it is a serious proposition for trainmen to start out over a busy division with a train, involving, as it does, the safety of lives and property, and both conductors and engineers should be allowed time enough to master the situation before leaving a terminal.

A check of trains could be given by the dispatcher to the operator at the same time a train order was given, same being made on a properly prepared blank, which would at least obviate the necessity of the conductor asking questions about trains not represented on the register, and would no doubt save some time; but the checking, even then, should not be done away with. However, this would work a hardship on the dispatcher, who oftentimes can not put out orders fast enough to move his trains.

The terminal telegrapher is necessarily a bright, intelligent, capable man, who stands at the head of his profession, and who deservedly aspires to the position of train dispatcher; but his duties are such that he should not be called upon to become directly responsible for the movement of trains.

MR. JONES: I do not see any reason for taking the responsibility from the conductor, where it is now placed, and I do not see that any additional safeguard would be secured by placing that responsibility upon the operator or the dispatcher. The conductor is the man to know whether he has a right to leave a terminal or not, and it is his duty to check the register and ascertain whether all trains have arrived or not. If we take the responsibility from his shoulders, we simply involve another employe, who is engaged in another department of the business, and who is more likely to make an error and overlook the numbers of trains than the man directly responsible. Any change in the present arrangement would be in line with the system long in vogue that, whenever an error has been made an effort should be made to provide ad-

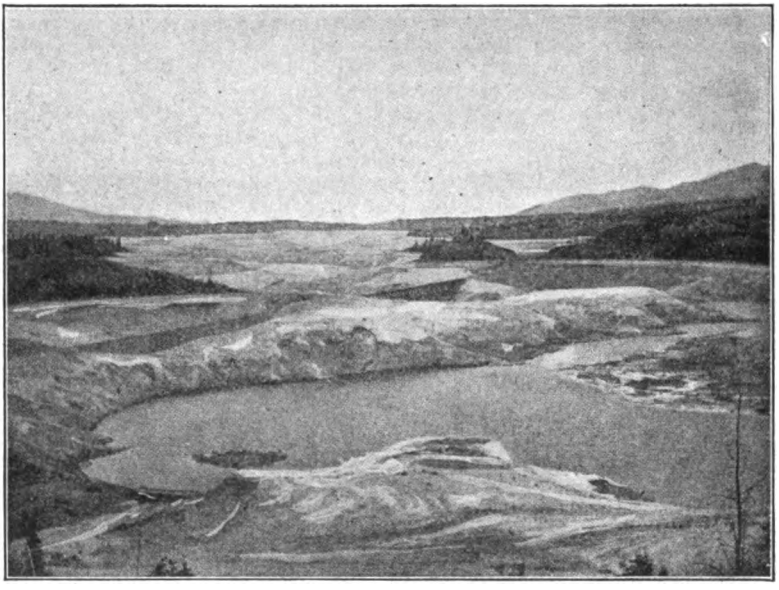


Fig. 5. LEWIS LAKE, AFTER DRAINAGE

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ditional safeguards, by additional rules or bulletins, and to involve some other employe in attending to the business. This has really had the effect of complicating matters, so that the important rules are lost sight of. We have nearly 300 standard rules in force in the operating of trains; in addition to these, we have about 100 in regard to the operation of the air brake, 100 concerning the block system, and there are 100 others in regard to other matters, so that a man, to be well versed in the rules, must have at his fingers' ends something like 600 rules, which are constantly being added to. The result of this is that employes not directly concerned in a matter become involved in what should be one man's duty. I do not think it an additional safeguard to have the responsibility put upon the telegrapher or the train dispatcher, and take it off the shoulders of the conductor, where it properly belongs, nor do I think it would save time. In putting out safeguards covering the movements of trains out of terminals, we should have the engineer present to check with the conductor, and both of them should agree before leaving the terminal that all trains having the right of track over their train have arrived before their departure. The responsibility can not be taken away from the conductor and put on some one else, and be called an additional safeguard. In making additions to the rules, with the idea of holding more men responsible whenever a mistake is made, another result is that so many are concerned in the execution of a rule that, when there is an error, it is pretty hard to locate the blame, because every man can throw the responsibility on some one else. I believe, in making safeguards, the proper course is to place the responsibility wholly on certain individuals for certain lines of duty, and in this case it should not be taken away from the conductor.

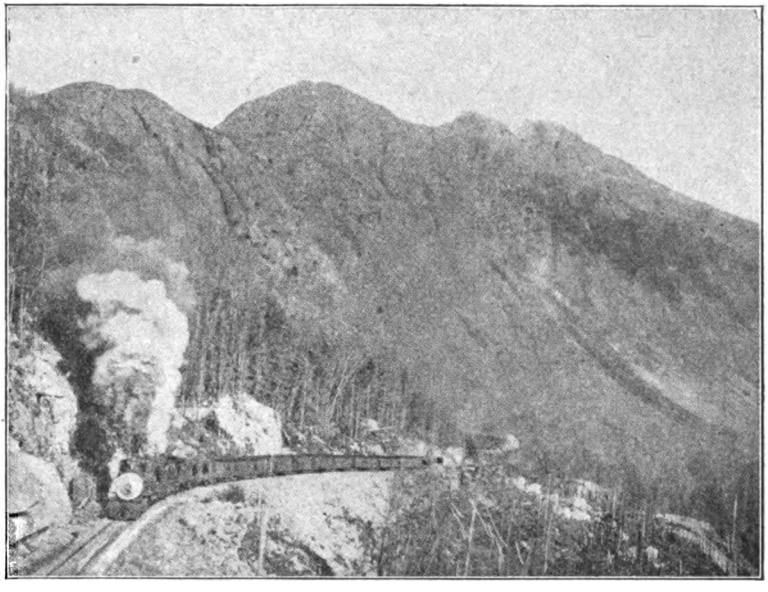


Fig. 7. FREIGHT TRAIN ON THE W. P. & Y. RY.

MR. HEINTZELMAN: I would like to ask Mr. Jones what he thinks of the idea of placing men on the most important trains whose sole duty it will be to look after train orders and rules governing the movement of trains especially.

MR. JONES: Mr. Chairman, that is what we will have to come to. Nearly every modern improvement that has been made in the handling of trains has increased the mechanical responsibility of the engineer; nearly all the clerical duties that have been inaugurated in connection with the handling of trains have increased the clerical duties of the conductor.

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Therefore we have arrived at a point where the men who ought to really attend to the running of a train alone devote most of their time, instead, to other matters, one to mechanical duties and the other to clerical duties. Take the case of the engineer: When we give him all that he can attend to with both hands and with his head (and I have no doubt both his feet will soon be occupied) and then expect him to handle train orders and determine the time-table rights of his train on the main line, the addition is too much, and there is the chance of that man forgetting something that is directly concerned with the movement of his train, because of his giving necessary thought to some mechanical duty that needs immediate attention.

The conductor is in the same position. He is required to keep full data concerning his train—to make reports of delays, seal records, slid-flat wheels, waybills, etc.—and has to sit at his desk to keep data for these reports while the train is moving, probably to some meeting point, and it is not to be wondered at that sometimes he overlooks a meeting point. In



Fig. 8. TUNNEL MOUNTAIN, FIVE MILES FROM THE SUMMIT OF WHITE PASS

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addition to this, the engineer and conductor are often half a mile apart on a long freight train, and the only way that the conductor can now promptly call the attention of the engineer to the fact that he is liable to overrun a meeting point is to press the trigger of his airgun and break the train in two. I think the time has come when the conductor should *conduct* the train, and should be relieved of the clerical duties. His whole attention should be given to determining the rights of the train by the time-table, train orders and communications with the superintendent's office. His place is with the engineer on the engine, and he should ride with the engineer; he should be the third man on the engine, so that, when any doubt arises, he is in close communication, and can call the engineer's attention to any fact that he thinks he has forgotten, without breaking the train in two. Let the clerical part of the business be attended to by a junior conductor, who can take care of the rear, and be held responsible for that portion of the train. Place the conductor with the engineer, to handle train orders, and, instead of requiring the engineer to read his orders to him and delay the train, let him go on the engine and be with the engineer, to be held responsible for the observance of the rules. Place the responsibility on one man, and let him understand that he is to conduct that train safely from one terminal to another, and be with the engineer at all times. If this is done, I think most all of the accidents that occur through errors in executing train orders or overlooking time-table rights will be prevented, and the conductor's pay would be more than made up in the saving of fuel now consumed by the delays which are now caused by the engineer and conductor not being in close communication.

One of the hardest things to contend with is to obtain a proper observance of the rules, there are so many of them. Some years ago I knew a man who tried to run his train according to the rules (and this is in line with the axiom of experienced trainmen that a train can not be run on schedule time over a division and have all the rules observed). However, this man endeavored to do so, and the boys called him "Creepy;" he was so often behind time, and seemed to move so slowly, that he got the name of "Creepy;" but "Creepy" was always right; he never violated the rules. On the other hand, there was another conductor who got over the road pretty fast, but he was frequently in trouble, and his efforts to get over the road and make time, regardless of rules, earned for him the cognomen of "Wild Bill." Now, between "Wild Bill" and "Creepy" there is a happy medium. A man should not be too fast, and he should not be too slow. I think the greatest safeguard can be found by relieving the man who has the mechanical duties to perform and the man who has the clerical duties to perform of the responsibility of running the train, and placing the duties of running the train, full observance of the rules, knowing the position of opposing trains, etc., on a man who attends to these alone, and who should ride on the engine with the engineer.

MR. SHEASBY: That duty should never be taken from its legitimate resting place, which is with the conductor and engineer. You can not do it, and, regardless of the necessity for observing the natural logic of the evolution of railroading, we must be very careful to guard jealously the original starting point, which is to hold your man who is captain of the ship absolutely responsible under all conditions. I would also like to bear witness to the truth of what Mr. Jones said in regard to the duties that railroad evolution has piled on both the conductor and engineer, especially with our large passenger trains, and it seems that the immense amount of clerical work that must be done on passenger trains is here to stay. The fact is, these men are overworked, to such an extent that it jeopardizes the safety of lives and property, and the only remedy I can see is right in line with Mr. Jones' remarks, to have a man on the train to be held strictly responsible for the safety of that train, and have another man for the clerical performance.

MR. FORNEY: I am satisfied that the time has come when something must be done to decrease the duties of the heads of that train, that is, the engineer and the conductor. I know from personal observation in running freight trains that the conductor back in the caboose is, as Mr. Jones says, half a mile away from the engineer, and, if he wishes to call the engineer's attention, he is obliged to send a brakeman over the train, and by that time he has probably gone several miles, or is obliged to stop, and then he gets a message asking him why he does not make the time. There is only one solution of the matter. From a motive

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power standpoint the duties of an engineer have increased to such an extent that it is remarkable he does not forget more orders than he does. Take a man with the average large engine, a compound, perhaps, where he is obliged to work, and, in descending long grades especially, that is the point where engineers should be relieved from the responsibility of paying a great deal of attention to train orders. On a long, heavy grade, with a heavy train, handling the train

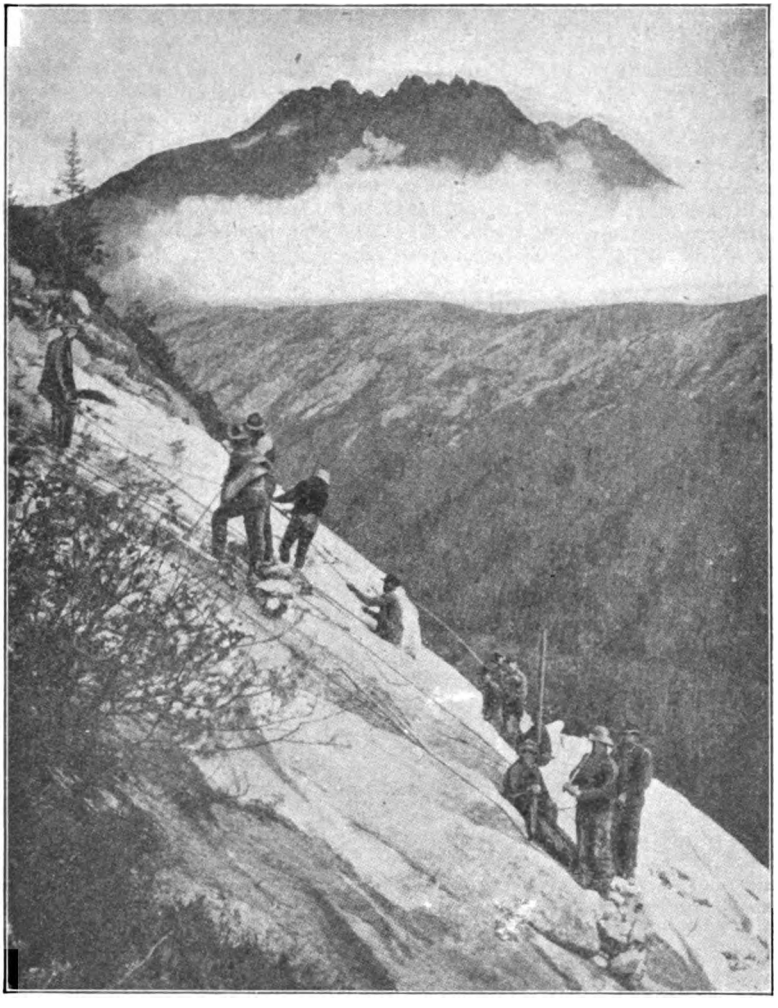


Fig. 9. CUTTING GRADE ON TUNNEL MOUNTAIN
Fig. 8 Shows the Work Completed

manipulate the engine and attend to various other matters, such as the lubricator, oil burners, etc., and it will take all his attention to look after these matters, and to see that everything is running smoothly, for a mile out of the terminal, and then it depends entirely on the conditions as to whether it will remain even with the air brake, a man has about all that he can attend to, and, should he be unfortunate enough to get a long train made up of some of the cars we are obliged to handle, where the braking power is very low and the schedule is faster than he really can make with safety, it is a very difficult matter for him to

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give that attention to train orders that it is necessary that he should. He has more than he can do in making a safe run with his train and making his meets and stops, without paying attention to anything else; and, under the present system, it seems there is a division of responsibility which is not conducive to best results; and there should be a man on each train who is absolutely responsible for the management of the train; he should be held to strict accountability for the safety of that train.—Pacific Coast Railway Club.

* * *

Rate-Making and its Causes.

C. L. WELLINGTON (Traffic Manager of the Colorado and Southern Railway): Rate-making is supposed, by many outside of railroad circles, to be conducted on some exact scale, but, with the exception of the local distance tariffs, which are applied on less than 1 per cent. of a road's business, there are no rates applied by any precise rule.

It is true that rates can be more intelligently adjusted by one who has the benefit of long experience, but, aside from experience, good judgment and common sense are essential. * * *

It is in the competitive field that rate-making becomes a problem. This statement, which all traffic men know to be true, shows at once that there is a fallacy in thinking rate-making a science.

This competition is not altogether between transportation lines. Commodities and markets are each great factors in the competitive field, and many changes in rates, which on the surface seem to be the result of keen competition between transportation lines, are primarily caused by trade conditions. I believe that in time these two elements will be conceded to have greater influence in establishment of rates than rivalry or competition of transportation lines. When this is fully acknowledged many of the troubles now harassing the railway interests with respect to interstate commerce will be removed.

The two kinds of competition furnish a sure leveling of rates which all railways have experienced. The constantly decreasing rate per ton miles necessitates a continual increase of tonnage and an adoption of economies which will produce net revenue to pay interest on the investment and proper dividends on capital. * * *

Traffic officials have, however, in the last few years, made great advances toward a science of rate-making, because conditions and experience have shown clearly the necessity of carefully considering the result, and statistics of traffic movement now prepared and the statements of earnings given are studiously scrutinized, to learn where economies can be practiced and how traffic can be more satisfactorily handled with a view to more net revenue. Results are now much more carefully looked for, and the traffic official who does not secure good results is not considered with favor.

In former years, the lack of such information which is now so easily procured, as to facilities of operation, tonnage statistics, density of tonnage by districts, relative earnings on commodities, and on traffic as a whole, caused the traffic men to work without any rule for making rates, but the cry was always "more tonnage," and little thought was given to net revenue.

With the pronounced increase in cost of everything a railway has to buy, including labor, rails, power equipment, in fact, everything that enters into railway expense, how necessary it is that every element of expense should be carefully scrutinized, and that all departments should consult, to the end that this exchange of ideas shall promote a more perfect system of machinery for performing the company's business at a minimum of cost, and conserving of revenue.

The traffic man should know what and where are the faulty places on his road as relates to transportation and use of power, and in making rates or negotiating with other lines, make use of that information for the benefit of his company, and in exchange of courtesies or reciprocation in making rates, that same information will benefit his competitors. While we are all selfish, the business conditions of this era make of us broader-minded men than of years ago, and most men do appreciate the reciprocity idea when it is used by an honest man. In times gone by it was unusual to see the transportation and traffic departments work harmoniously, while now, that department which will not be brotherly soon experiences a change of staff. In old times a traffic man would have been astonished to receive a statement showing the freight ton miles for a given month, while now he looks anxiously for such statements, which show monthly the detailed movement of the various commodities his road handles, the average haul, the rate per ton mile, and so much valuable information that this concentration

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of knowledge of the detailed items of his traffic may be likened to a tallyho driver, holding in his hands the lines for guiding a string of horses, each line giving him direct communication with the transportation power.

The latter wants quick and regular movement of both freight and passenger trains, and the other departments need regular deliveries and such arrangements as will enable their cars and trains to be

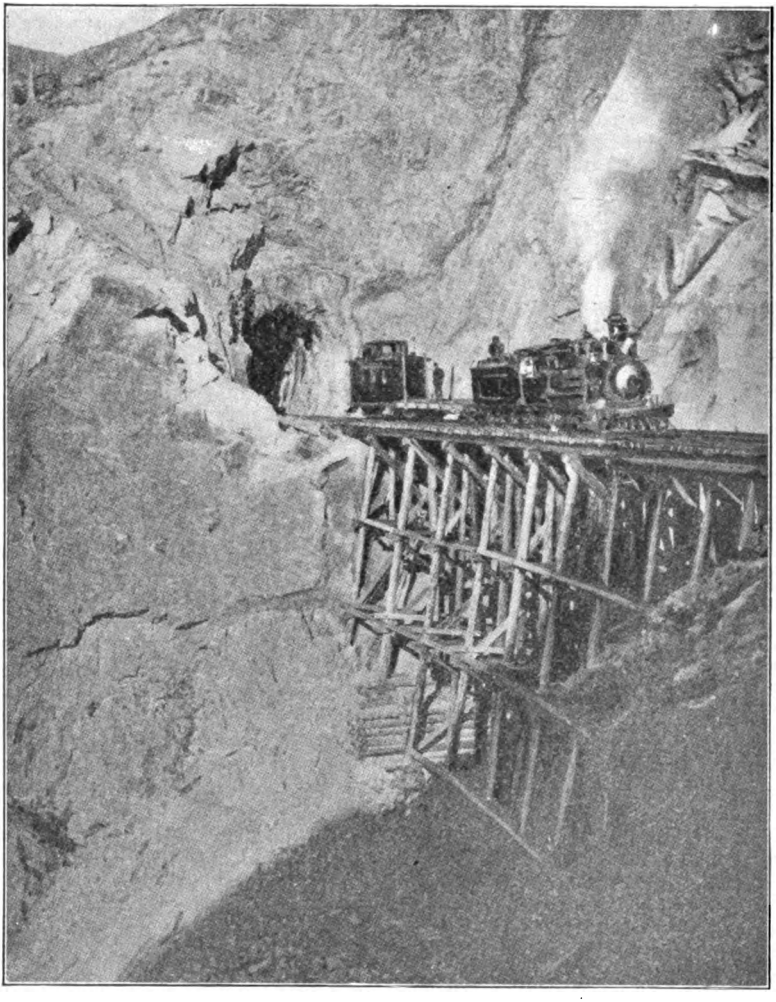


Fig. 10. THE "SWALLOWS' NEST"

It should be the aim of every traffic man to bring about such condition of rates and rules as will enable the transportation and mechanical departments to perform their service to the best advantage and the minimum of cost, for if this is not done, a serious handicap is placed upon those departments, in their efforts to further the development of the traffic department.

utilized to their capacity. That is an ideal condition which is not often attained, but to reach a high mark we must all have ambition to make a goal which must be so far advanced that we will see something ahead to strive for, and be encouraged, by such successes as we meet, to continue the efforts toward the perfect. —Rocky Mountain Railway Club.

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"Making" Firemen.

MR. T. A. FOQUE (M., St. P. & S. Ste. M. Ry.): I believe that in selecting a wiper you should, as far as possible, select a future engineer. We follow that practice as far as possible ourselves, and I have seen the time when we were quite successful. At the present time so much can not be said in favor of the plan, because good men who are willing to work for wipers' wages are scarce, and material for future engineers is perhaps not so plentiful as it used to be.

But while in a way the nature of a wiper's work makes him untidy to look at, an untidy wiper should not be retained in that position. If he be of the right sort he will fill that position satisfactorily and then be advanced to the position of machinist-helper, which, in most roundhouses, carries an advance in pay. He has something to look forward to before going out on the road, and from the position of machinist-helper he can then be put onto an engine, and within my own experience I have seen a number of first-class engineers who came up through the roundhouse in that way. The wiper's wages are probably as low as any, and if we want good men in those positions we can not consistently ask them to come and be a wiper all their lives with nothing to look forward to.

MR. J. BIRSE (Chicago Great Western Ry.): There is quite a wide scope to be taken into consideration on the subject of the wiper. From my experience with the wiper in the last three or four years you are unable to get any that make satisfactory engineers in every respect, on account of the wage question, but I believe that in sorting out these men they should be picked from a class with the judgment of the locomotive foreman as to the making of engineers, and you can make every bit as good an engineer out of a wiper as you can out of a machinist-helper. As far as the machinist-helper is concerned, they are handicapped now. They can't get anything to do, can't get any information; the machintsts' union has got them fixed. They don't learn anything any more, and you might as well take the wiper, and by educating the wiper you have got to take the educated young men. There is no trouble in getting a class of wipers that will make good firemen, and also engineers. My experience in hiring firemen has been to get the right young men that we might find in different locations handy at machinery, and take them out as students before starting them out. We have been very successful in that line. We have found it so on the road that I am with now. The best firemen that we have got now have never been wipers, but were picked up in that course.

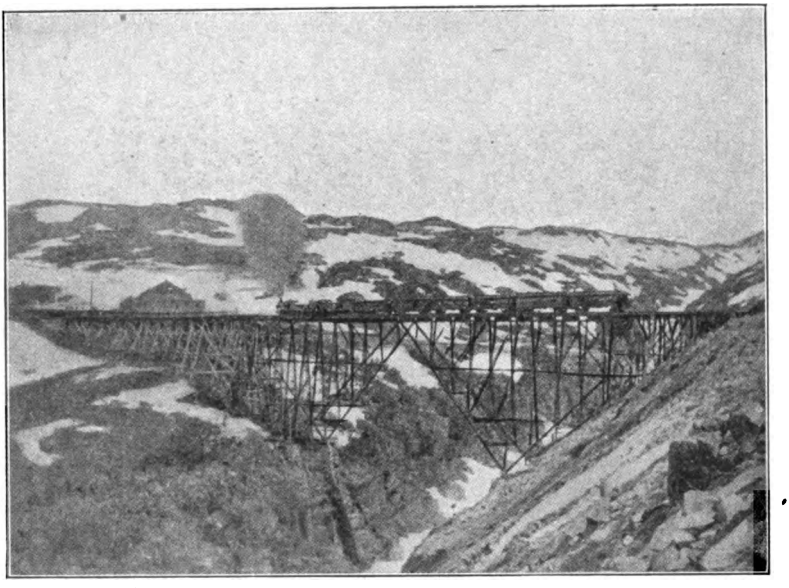


Fig. 11. STEEL CANTILEVER BRIDGE

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MR. JOHN LYNCH (Chicago Great Western Ry.): I think that the hiring of firemen should be left to the traveling engineer, if you have one. He should be the best judge of who will be a good fireman. Let him accompany him over the road, and if he does his work satisfactorily, well and good, and if he does not, he is of no use. I think you can get just as good firemen from wipers as you can from any other class of labor. If a wiper knows he is going to be promoted to a fireman he will certainly try to do his work properly.

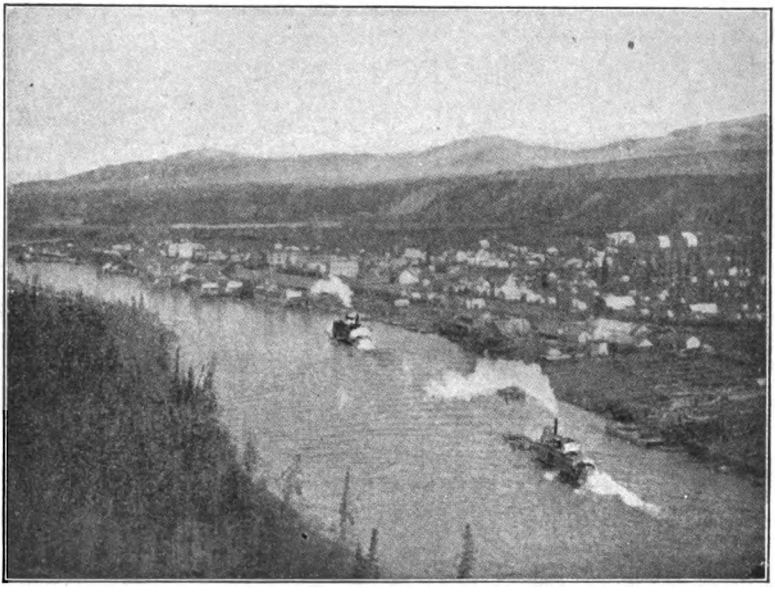


Fig. 12. WHITE HORSE, IN ITS EARLY DAYS

Possibly a machinist-helper would make a good fireman; possibly he would not. If he is adapted to that kind of work, well and good, and if he is not, he will be of no use in that kind of work. Possibly some of the gentlemen here do not believe in phrenology. I think the proper way to determine a man's fitness for a fireman is to examine his head.

PROF. J. J. FLATHER (University of Minnesota): Isn't the question a little broader? Should it not be—Which will make the better *engineer*, the wiper or the machinist-helper? Are not the engineers made from firemen, and are not the firemen made from the raw material, wipers or machinist-helpers? The question, therefore, it seems to me, is—Which will make the better engineer? And I can not but think the machinist-helper, the man who has possibly helped build the engine, and who at least has taken it down and understands its construction; he is the man who, in case of trouble or an emergency is better qualified on the engine than the man who has simply cleaned it. In any case, it is a question of intelligence; but, other things being equal, I believe that the machinist-helper would make the better engineer.

MR. T. B. KEIM (Great Northern Ry.): In this discussion I have heard nothing said in reference to the machinist apprentice. When I entered the shops of a railroad company a great many years ago, there were fifteen besides myself who entered the shops as machinist apprentices. Seven of these men went out on the road as firemen and subsequently became engineers, the finest engineers that they ever had on our road. If anything happened to the engine they knew what to do. Seven of these machinist apprentices finished their trade, but did not remain at their trade; they wanted to become engineers, and they were at once put on engines, and, I say, are now successful engineers. I know some of them personally, and have had correspondence with them, and I know from the record of accidents that

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when anything happened to their engines these men took right hold and they got to their destination.

MR. LYNCH: I would like to ask any of the old-time engineers here if they ever knew a machinist who went to running an engine, and what comparison he made with the men that were made from firemen? From my point of view, I don't recollect of a machinist ever making a first-class engineer; that is, coming up to the standard of the men that were raised as firemen. The machinist may have had some good education about the construction of an engine, etc., and after four or five years he may get along pretty well as compared with the men that were raised from firemen.

MR. GEO. H. HORTON (M., St. P. & S. Ste. M. Ry.): I do not think it matters much whether we make them out of wipers or machinist-helpers; it is the quality of the men we accept in the first place. It would be much the better plan to carefully select the man that you are putting firing, if you intended to place him in charge of an engine, and I do not think it would make any particular difference whether he came out of the roundhouse or out of the machine shop. If he were a man who had ability to become a fireman and eventually an engineer, it seems to me that he would do equally as well in one place as another, although by putting him in the machine shop he would gain more knowledge as to the repairing of locomotives than on the road, and he would be in better shape to take charge of an engine after he was running.

MR. H. A. FERGUSSON (C. G. W. Ry.): It seems to me that it is not very fair to say to the wiper, "You get down there in that dirt and wipe the engine;" and then, after he has done it, to say, "You are too dirty to make a fireman of." A wiper spends his time trying to keep things clean, and in doing this it is natural that he should get a little dirt on himself. If a man makes a good wiper, and he has the right qualities and ability of which to make a machinist-helper, make him a machinist-helper. Then you can find out what kind of stuff he has in him, and if he is the right sort make a fireman out of him.

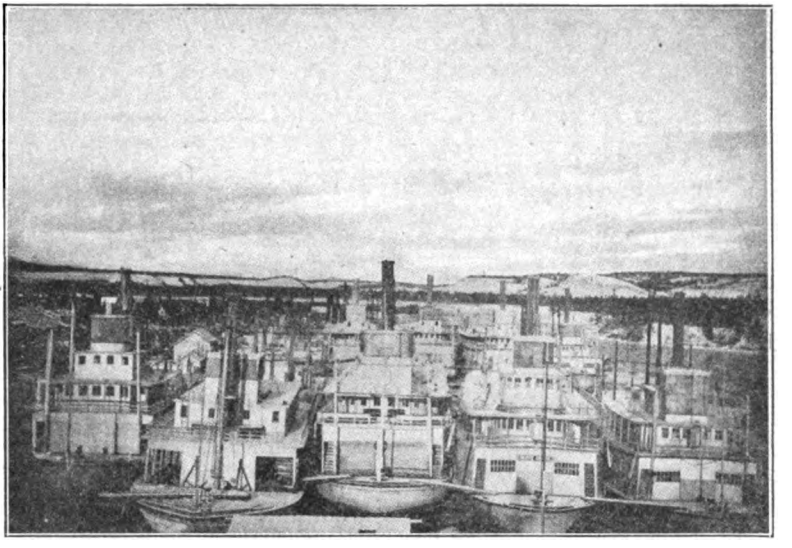


Fig. 13. RIVER STEAMERS AT WHITE HORSE

MR. C. W. ROSSITER (N. P. Ry.): The only wipers that I am able to employ, with two exceptions, are young boys from eighteen to twenty-one years of age, who come from the high school in Minneapolis. Most of those coming from the high school come to me with the intention of getting on as firemen, simply because a son of one of the engineers came from the high school and took a position as wiper, and then machinist-helper, and in a short time was promoted to fireman, and is now one of the best firemen that we have on the road. In regard to employing wipers, I first get

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them to make out their application. If I find that they are very poor writers—not only in their penmanship, but in their general way of making out the papers—they are deficient, they are not capable of becoming very good firemen, and I tell them so at once, and generally they will leave the roundhouse. With very few exceptions, when they come to make out their papers, while their writing may not be what would be called fine penmanship, it is good writing, and everything looks as though they knew their business, and I give them an opportunity. But if I find, after a few weeks or months have passed, work that we have had in previous years, they have not had a collision, have never had a wheel off the track from their own carelessness.

But this spoils my wipers; they are all crazy to get out, and for that reason I am very greatly hampered for men to wipe the engines. But as far as promotion is concerned, when I can find out the traits of character of a man I can tell whether he is going to make a successful fireman or not. Sometimes a man's disposition is such that he is an unpleasant man to do business with. You can not get along with such men. You will find that just



Fig. 15. FREIGHT TRANSPORTATION AFTER THE YUKON IS FROZEN

they do not know anything about an engine, when you tell them to go and wipe a driving box they go and wipe off the drawhead on the back of the tender, I tell them they will not do. Some of the men that I have employed during the six years I have been in Minneapolis, have become excellent engineers.

I have been compelled, on account of the scarcity of men, within the last four or five weeks, to take the firemen that are down thirty-seven numbers below the last one that has been examined, and put them out running engines, and I would state, as I stated to our superintendent a few days ago, that these young men have shown a better record than the old engineers, and while we have had triple the as necessary a qualification as anything else in making good engineers or firemen. And I think there is a great value in the suggestion that one gentleman has made here tonight concerning the application of phrenology in the selection of applicants for the position of fireman.

MR. FOQUE: Before this discussion is closed, I wish to endorse Mr. Lynch's remarks, and add that it is my firm belief that the principal thing is to measure a man's head. I do not think it makes much difference whether we promote a fireman from the position of wiper or machinist-helper or machinist apprentice. It is not altogether the ability of a man to get out of a scrape that makes him valuable. Some men are apparently born

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to keep out of trouble, while others are continually having little annoying things happen. The former are much to be preferred to those who are all the time having little troubles, but who show a nice ability to fix them up afterwards.

MR. BIRSE: I would like to ask some of the members if they have ever had any experience with making firemen out of brakemen. That was advocated with us, but it has not been very successful. We had a few that went to the position of fireman and have turned out to be very good men. I think we can get very good firemen from the ranks of the brakemen if they have got a good education. I would like to hear from some of the members on that question.

MR. LYNCH: It is a common practice nowadays for firemen to look for a job braking. The engines are so large and the brakeman's work is so light that they prefer braking to firing.—Northwest Railway Club.

Smokeless Firing

By Ed. E. Sheasgreen

Th' ol' man lighted his dudeen
An' squeezed it in his gums between
Then cussed an' raved at his machine—
 Th' pointer was a laggin'.
His lilacs stood out from his chin;
His greasy face got black as sin;
While his poor fire boy's hide got thin
 Twixt shovelin' an' twixt naggin'.

"See here, you chump, look at th' steam!"
Howled poor old dad in fearful mien.
"Put on th' blower! 'T does surely seem
 You don't know how to fire!"
"Well, now ol' boy, jest hol' yer rail,
Yer slippin' bad; She sure won't fail
With smoke that's white." Thus whispered Dale
 Too dead to shout with ire.

"I'm firin' her jest as our T. E.
Explained it when he last saw me;
I'll bet an X no smoke you see—
 No matter 'bout th' steamin'!
Why it's no trick ter keep 'em hot.
Jest put *one* scoop full on a spot
Where grates 're showin' up a lot—
 Yo' kinder ketch m' meanin'?

"An' then yo' twist yer scoop aroun',
An' if the pop *should* start ter soun',
Why then jest drop a damper down—
 Oh, say, it's sich a frolic!
No matter if we have one car,
Er three miles long the freight trains are,
Jest fire th' same—it's as easy, sar,
 'S to laugh when full o' colic.

"Why from our present new G. M.,
Down to our honorable ol' M. M.,
With clerks an' artists followin' 'em,
 They *all* know how to *do* it.
An' even those who boss the schools,
An' mail freak questions from their stools,
All say that *we're* a pack o' fools
 An' *don't* know how to do it.

"Perfessers who have never been
Jest once inside the cab; an' men
In stores, an' even kids 'll len'
 Their help about th' bizness.
An' I suppose some demons, too,
That watch while we're a smokin' through,
'Re thinkin' they'd know how to do—
 'Re chuck full o' this quizness.

"An' some o' you who tossed th' wood
Back in th' days o' Robin Hood
Yo' think yo' know jest how we should
 Burn coal without it smokin'.
I have ne'er yet th' bosses seen,
Er clerks, er artists in between,
Ner you, ol' whiskers, cussin' mean,
 Once do these laps—no jokin'!

"You make me weary, every one!
If firin' a cruiser 's sich holy fun,
With trains o' twenty hundred ton,
 Why don't you all go firin',
An' not be tellin' how to do?
'Twould help th' temper o' those like you,
An' help these tonnage freighters through—
 For a bosship through yer 'spirin'."

Again th' ol' man lights his pipe;
The fire boy hits th' door a swipe,
Th' smoke rolls out now black an' ripe—
 Th' pop begins to simmer;
While far across th' starry sky,
All through th' night, th' clouds fly,
Until at last, "On Time," their eye
 Sees terminal light aglimmer.

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Enginemen's Course in Arithmetic

By W. S. Carter

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Mensuration

133.—The Circle and its Properties. A Circle is a plane surface bounded by a uniform curved line, every point on which line is equally distant from a common point within.

(Fig. 24 illustrates six circles.)

The *Circumference* of a circle is the curved line which bounds it.

(In Fig. 24 the curved line *l m n o* is the circumference of circle 3.)

The *Center* of a circle is a point within that is equally distant from every point in the circumference.

(In Fig. 24 the point *b* is the center of circle 1; the point *s* is the common center of the circles 3 and 4.)

An *Arc* of a circle is any part of the circumference.

A *Radius* of a circle is a straight line from the center to the circumference.

(In Fig. 24 *a b* and *p b* are radii of the circle 1. The plural of radius is radii.)

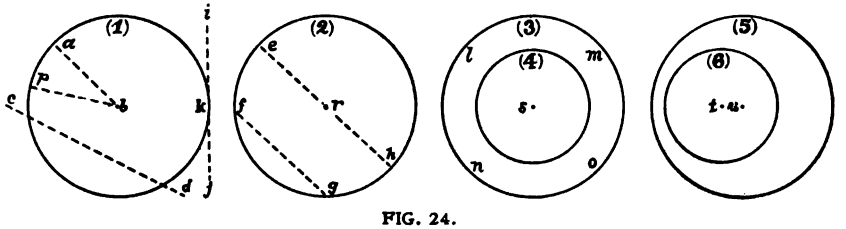


FIG. 24.

A *Diameter* of a circle is a straight line passing through the center and terminating at both ends in the circumference.

(In Fig. 24 the line *e r h* is the diameter of the circle 2. A diameter divides both circumference and circle into two equal parts.)

A *Chord* of a circle is a straight line that terminates at both ends in the circumference but does not pass through the center.

(In Fig. 24 the line *f g* is a chord of the circle 2.)

NOTE.—The terms circumference, arc, radius, diameter and chord are also used to designate the length of such lines. The term circle is by custom applied to circumference, which is not accurate, as the circle is not the curved line, but the space enclosed by the curved line.

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A *Secant* of a circle is a straight line which crosses the circle, intersecting the circumference at two points.

(In Fig. 24 the line *c d* is a secant of the circle 1. It will be noted that a chord terminates at both ends in the circumference, while both ends of a secant extend beyond the circumference.)

A *Tangent* of a circle is a straight line that touches a circle at one point only.

(In Fig. 24 the line *i j* is a tangent of the circle 1. It is customary to say that "the line *i j* is tangent to the circle 1.")

A *Sector* of a circle is a portion of a circle bounded by two radii and the subtended arc.

(In Fig. 24 that portion of the circle 1 which is enclosed by the two radii *a b* and *p b* and the arc *a p* is a sector of the circle 1. An arc that is enclosed or limited by two radii, or by a chord, diameter, etc., is said to be a *subtended* arc.)

A *Segment* of a circle is a portion of a circle bounded by a chord and the subtended arc.

(In Fig. 24 that portion of the circle enclosed by the chord *f g* and the subtended arc is a segment of the circle 2.)

NOTE.—A circle is said to be *concentric* to another circle when the two circles have the same center but different diameters, as in Fig. 24 the circle 3 is concentric to the circle 4. A circle is said to be *eccentric* to another circle when they have different centers, as in Fig. 24 the circle 5 is eccentric to the circle 6.

134.—Propositions Relating to Circles.

Prop. XXIII.—The circumference of a circle is equal to the diameter multiplied by 3.1416.

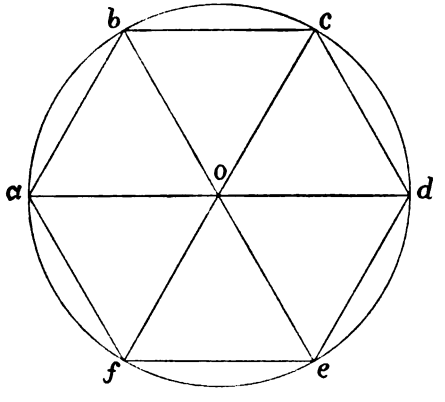


FIG. 25.

(There is no method by which the *exact* circumference of a circle may be determined, but *approximately* Prop. XXIII is correct. By inscribing a hexagon in a circle whose diameter is 2 inches, as in Fig. 25, we find that the perimeter of the hexagon is exactly 6 inches, that is, the perimeter of the hexagon is exactly three times the length of the diameter. In Fig. 25 the diameters *a d*, *b e* and *c f* are each 2 inches, and the radii *o a*, *o b*, *o c*, *o a*, *o e* and *o f* are each 1 inch. It is a fact that the six triangles formed in an inscribed hexagon are equilateral triangles, therefore, as *o b* equals 1 inch, and *a b* also equals 1 inch, $a\,b + b\,c + c\,d + d\,e + e\,f + f\,a = 6$ inches. Now, if the circumference of the circle exactly coincided with the perimeter of the hexagon the circumference would also be 6 inches, but from the drawing it is evident that the

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circumference is slightly more than 6 inches, that is, the circumference is slightly more than 3 times the diameter 2 inches. In Figs. 26 and 27 are polygons of 12 and 18 sides respectively, inscribed in circles. It will be noted that the greater the number of sides of the inscribed polygons the nearer the circumference of the circle coincides with the perimeter of the polygon. If we conceive an inscribed polygon of innumerable sides it is evident that the perimeter of the inscribed polygon will almost exactly coincide with the cir-

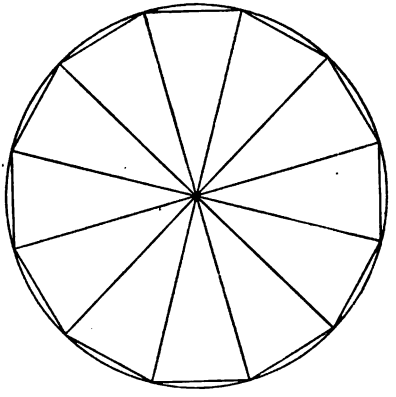


FIG. 26.

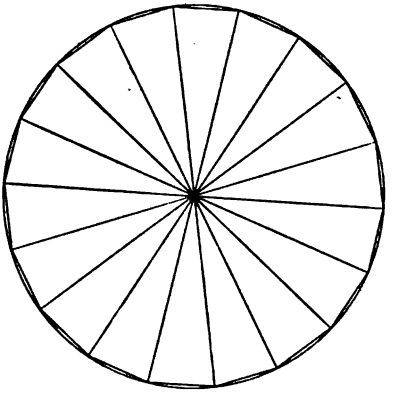


FIG. 27.

cumference of the circle. It has been determined that a polygon having 3,072 sides inscribed in a circle whose diameter is 2 inches has a perimeter of 6.28318420+ inches, that is, the length of perimeter is 3.141592 times the length of the diameter. This is considered to be sufficiently accurate for all practical purposes, in fact, only 4 decimal places are used, and it is said that "the circumference of a circle is equal to the diameter multiplied by 3.1416.")

Prop. XXIV.—The diameter of a circle is equal to the circumference divided by 3.1416.

(This proposition is the converse of Prop. XXIII.)

Prop. XXV.—The area of a circle is equal to the square of the diameter multiplied by .7854.

(As in Prop. XXIII, this statement is only approximately correct, and has been determined by a similar course of reasoning, .7854 being one-fourth the circumference 3.1416.)

Prop. XXVI.—The area of a sector of a circle is in the same proportion to the area of the circle as the measurement of the subtended arc is to the measurement of the entire circumference.

(In Fig. 28 the area of the sector *a o b* is equal to $\frac{1}{4}$ of the area of the circle because the arc *a b* measures 90°, and, therefore, is equal to $\frac{1}{4}$ of the circumference. With the aid of a protractor (see Fig, 14, December, 1902) it may be determined that each subtended arc in Fig. 27, formed by inscribing a polygon with 18 sides, measures 20°. As every circumference measures 360° (see Art. 123, December, 1902) the area of each sector is equal to $\frac{1}{18}$ of the area of the entire circle, therefore, to find the area of the sector we first find the area of the circle and take such part as the arc is of the circumference.)

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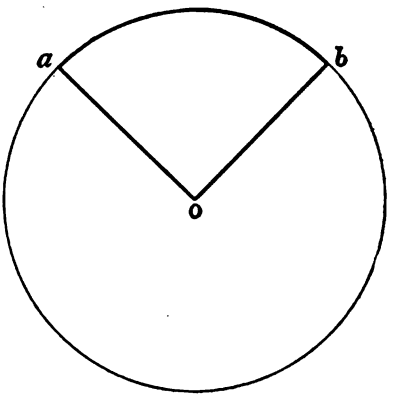


FIG. 28.

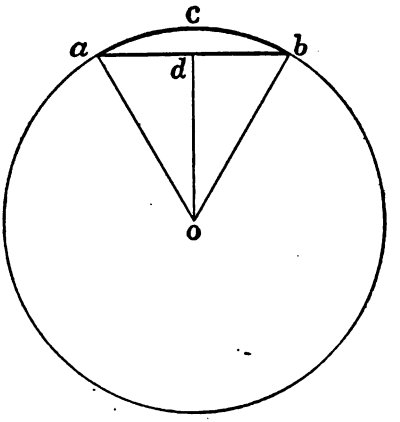


FIG. 29.

Prop. XXVII.—The area of a segment is equal to the area of a sector with the same arc, minus the area of the triangle formed by the chord and the two radii.

(In Fig. 29 the segment formed by the arc *a c b* and the chord *a b* is equal to the area of the sector formed by the two radii *o a* and *o b* and the arc *a c b*, less the triangle formed by the chord *a b* and the two radii *o a* and *o b*.)

135.—Problems Involving Circles and Areas of Circles.

Prob. 24.—From a given arc form a complete circumference.

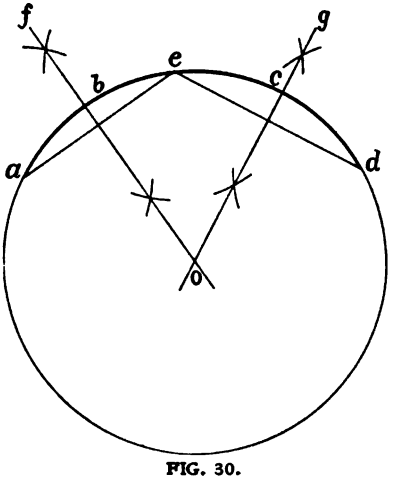


FIG. 30.

(In Fig. 30 let *a b c d* be the given arc. Draw the two chords *a e* and *d e*. Bisect the two chords with the two lines *f o* and *g o*. (To bisect a line see Prob. 1, December Magazine.) The point of intersection of the two lines which bisect the two chords is the center of the circle. From the arc of a segment a complete circle may be formed in like manner.)

Prob. 25.—If a driving wheel is 60 inches in diameter, what is the circumference? *Ans.* 188.496 in.

From Prop. XXIII: The diameter 60 inches $\times$ 3.1416 = 188.496 inches.

Prob. 26.—If an engine has drivers 62 in. in diameter and truck wheels 30 in. in diameter, how many times will the truck wheels turn while the drivers are turning 100 times? *Ans.* 206.667 times.

From Prop. XXIII: The circumference of the drivers is 62 in. $\times$ 3,1416 = 194.7792 in. The circumference of the truck wheels is 30 in. $\times$ 3.1416 = 94.248 in. In 100 revolutions the drivers will travel 194.7792 in. $\times$ 100 = 19.477.92 in., which divided by 94.248 in. (the distance traveled by the truck wheels in 1 revolution) = 206.667 + times.

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Prob. 27.—If a driver rolls 233.569 ft. in 14 revolutions, what is its diameter? *Ans.* 63.7261 in.

The distance traveled in 14 revolutions is equal to 2,802.828 in., or in 1 revolution 200.202 in., which is the circumference of the driver. From Prop. XXIV: 200.202 in. $\div$ 3.1416 = 63.7261 in.

Prob. 28.—If there be a pressure of 160 pounds of steam in the front end of an 18 in. x 26 in. cylinder what is the total pressure on the piston? *Ans.* 40,715.136 lbs.

From Prop. XXIV: The area of the piston is equal to the square of the diameter multiplied by .7854, therefore, $18^2 = 324$ sq. in., and 324 sq. in. $\times$.7854 = 254.4696 sq. in., the area of the piston. As the steam pressure is 160 lbs. per square inch the total pressure on the piston is 254.4696 $\times$ 160 = 40,715.136 lbs.

Prob. 29.—Suppose the sector *a b o* in Fig. 28 has the following dimensions: The angle *a o b* measures 90° and the radius *o b* measures 8 in. What is the area of the sector? *Ans.* 50.2656 sq. in.

The sector is from a circle having a radius of 8 in. and a diameter of 16 in. The area of a circle 16 in. in diameter is, $16^2 \times .7854 = 201.0624$ sq. in. From Prop. XXVI: The measurement of the angle of the sector is 90°, which is $\frac{1}{4}$ of 360°, the measurement of the entire circumference of the circle. The area of the circle, 201.0624 sq. in. $\div$ 4 = 50.2656 sq. in., which is the area of the sector *a b o*.

Prob. 30.—In Fig. 29 suppose the chord *a b* equals 1 inch, and the radii *o a* and *o b* each equals 1 inch, and the perpendicular *o d* equals .866 inch, what is the area of the segment formed by the chord *a b* and the subtended arc *a c b*? *Ans.* .0606 sq. in.

If the radius is 1 in., the diameter of the circle of which the segment is a part is 2 in. and the area of the circle is $2^2 \times .7854 = 3.1416$ sq. in. From Prop. XXVI: By measurement we find that the angle *a o c* is 60°, which is $^1/_6$ of the entire circumference, and, therefore, the area of the sector *a c b o* is $^1/_6$ of 3.1416 sq. in., or .5236 sq. in. From Prop. XX (January Magazine): The area of the triangle *a b o* is found by multiplying the altitude by half the base, therefore .866 in. $\times$.5 in. = .433 sq. in. From Prop. XXVII: The area of the sector .5236 sq. in., minus the area of the triangle .433 sq. in. = .0906 sq. in., which is the area of the segment formed by the chord *a b* and the subtended arc *a c b*.

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An Incident of Industrial Life

By W. L. French

BERNARD JOYCE was a brass finisher employed at a great car works. His history was not different from many another man who labors for some corporation that he and his family might have bread. From 7 a. m. until 6 p. m., barring the noon hour, he toiled for two dollars per day, and he was one of the best paid employes in the shop; making hand rails, mountings and ornaments for the coaches and putting them in place, to please the public eye and for its convenience. Out of his pay each month he endeavored to lay aside a few dollars against the rainy day that comes to all, and fortunate are those who are prepared for its coming. But try as he did, how could he lay aside much when the company owned the house, the lights, and the water, and charged roundly for each, and kept wages as low as possible.

Now and then Bernard lost a few days through illness, and work as steady as he could he saved but little, and at times he felt discouraged and discontented. Holidays there were none. Such days and Sundays he rested, to be ready for the morrow's grind. Then it takes money to enjoy a holiday, and the workmen at the car works had none to spend that way. He had married a nice girl with domestic tastes when he was twenty-three and she was twenty, and they had entered on the battle of life full of zeal and hope for the future.

There was now a little girl of seven, and there had been a little boy who had come and stayed three years with them, but his short life had been full of pain and sickness, and one day he yielded it up. Both children had been truly welcome when they came and the little boy was mourned deeply when he was gone, but their coming and his going cost money, and money came oh, so slowly, and went so swiftly that their hopes to better themselves seemed only folly.

Times were getting steadily worse at the car works. The ten hours per day had been shortened to eight, with a proportionate reduction in wages, and the employes receiving the best pay could hardly strike a balance between expense and income at the end of the week. The first reduction in the hours of labor had come immediately after a committee had waited on the manager, asking for better pay. The manager had claimed that the company could not pay more, that they would have to shorten the hours of labor because of so little work ahead. The committee knew it was untrue, and they still recognized it as such when the hours of labor were cut. The discontent grew, and the mutterings of dissatisfaction became louder, and the rules were enforced more rigidly by the company. It was evident that open warfare was only a question of a little time.

The employes as a whole were getting behind daily and they felt that a position that would not give them a living was not very valuable and might better be sacrificed in an endeavor to better themselves than to be held to under the conditions which they labored. This feeling was the stronger from the fact that the men knew the company could do reasonably well by them but was seeking to put them in a condition of absolute helplessness by involving them hopelessly in debt.

Another committee was sent to the manager with a demand for certain concessions. The manager told them he was powerless to grant their request and he advised them to go to the president who owned the controlling interest in the works, and they did so. At first the president tried to put them off with a flow of smooth talk, but when this failed he laughed at them and told them to go on and do their worst. Why should he care? He had an abundance if the works never operated another day. He could starve them all to death and laugh at their misery, and when it was all over he could start the works with new men.

The next morning the works were closed. The papers printed accounts of "the strike," some giving the real facts of the case, saying it was a "lock-out," but the majority coloring their accounts to suit the car company, for the men were not rich. The special police came with

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their guns and clubs and in a few days that human vulture, the "scab," was in evidence, as he always is, no matter what conditions or compensation is given him. Without him, the employer would be helpless to break any strike; he seems to know his power to do evil and gloats over it.

The car company was spending far more money in the effort to defeat their old employes than would have paid the increase in wages asked by the men for several years. But then there is nothing like "running one's own business," even though it does cost lots of money. Some of the old employes went elsewhere while some went back to work worse off than before. All were starved out.

Bernard Joyce had been one of those who had gone away in search of work after the strike was lost, and he secured it. His old employers found him out and he was discharged after three months service without any sufficient reason being given, but in his own mind Bernard was certain of the reason. He found other positions but they went the same way as the first one. It seemed impossible for him to secure permanent employment because of the "blacklist."

His family had reached his new home and when they came Joyce had, as he supposed, steady employment and there was no misgivings for the future in their minds. With loss of work their money was soon gone, and day after day Bernard tramped the streets along with the ever-growing army of unemployed. He found an odd job here and another there, barely enough to keep soul and body together without seeking charity, yet they were in actual want. His neat tidy appearance was gone and this was against him in his search for work, and day by day he grew more wretched and discouraged. At such times he brooded over the iniquities of the blacklist which kept men out of work at the will of their former employers, until that feeling came up in his heart which men have when they commit murder.

To add to the burden of his woes his wife grew ill. Poor food, and sometimes none at all; two miserable rooms in an unsanitary, rickety tenement house at the top of two flights of stairs were conditions which, with the worry over their misfortunes, had broken her health at last. A doctor was found who came to see her. He knew there was but little chance that he would ever receive his pay for coming, but he had gone hundreds of times before under just such conditions and why should he not go again? There is so much misery and want in the world that one should do all he can to relieve it. This was his belief and he practiced it fully.

There was nothing he could do for Mrs. Joyce except to ease her days of pain before she sank into an eternal sleep, and that he did. There was no sorrow in her heart for the life she was leaving. Why should she sorrow for it? The happy days were gone. There was nothing ahead but sorrow, suffering and poverty. Only for her parting with husband and daughter she mourned. One day she closed her eyes and went away forever, leaving two sorrowing hearts behind. Bernard Joyce sold enough trinkets and household goods to give his wife proper burial. The thought of a pauper's grave for her was as death to him, and she was laid away quietly where the morning sun would shine on her unmarked grave.

Joyce decided that he and his little daughter, Mercy, would live where they were until the blacklist was forgotten, then they would move elsewhere, and Mercy should be properly educated and looked after. There was an old German woman living on the same floor who had been very kind to his wife. She promised to look after Mercy as much as she could, and although as poor as they she kept her word and often gave Mercy food she needed herself. The poor are kinder to the poor than are the rich, for they share their sufferings, know their needs, and feel the touch of human sorrows that warms the heart toward mankind.

Bernard Joyce's ambition was gone; his hope died with his wife. He commenced to drink and spent more time in and about saloons than he did looking for work and more of the little money he obtained went that way than at home. In fact, he had come to believe that for him the search for work was worse than useless. A few months of this kind of life made such a wreck of Joyce that his friends of former years would have deemed impossible. Through it all Mercy loved him, although at times when he was drunk she was afraid of his strange actions and would go away to bed and cry herself to sleep. Joyce endeavored always to be kind to the child, and he was except when liquor had dulled his sensibilities. He had formed a comradeship with one Thomas Black, a thief when he could be without fear of detection, a gambler and confidence man all the time. Joyce had been mixed with him in the doing of some deeds to secure money that were all but

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criminal and his moral nature had been hardened up for something worse. Black had never earned an honest dollar and never expected to if he could avoid it. He had long dreamed of some grand stroke in crime that should yield him big returns and make him independent of petty crimes for all time and he believed the time had arrived for the carrying out of his project with the assistance of Joyce.

Because of an industrial depression many people drew their money from the banks and concealed it about their homes. Black, sneaking about different banks, had observed an old couple draw out a large sum of money, and he had followed them until they entered their home where he was certain they would conceal it. Believing there would be little danger in robbing people so old as they, he determined to secure Joyce's assistance and try and steal it that same night. Liquor and bad associations had done their work for Joyce and he readily fell in with the plot as laid before him by Black. If they were successful in getting the money—and there was no doubt they would be—they could quit the life they were leading, go elsewhere and live as honest men do. Their plans laid, they separated to meet at a certain saloon from whence they would go to the scene of their crime at an hour deemed most advisable.

Joyce went to his miserable home. Ordinarily he would not have gone there but the old German woman who usually looked after Mercy's welfare was away caring for a poor sick woman who lived across the street, and a sense of duty drew him home despite his drunken condition. Mercy had been much alone during the old woman's absence. She had grown thin and pale since her mother's death and she showed plainly the marks of neglect and want. Of late she had taken to lying down much of the time in a half stupor and if her father had been sober and the man of other days he would quickly have realized her needs and condition and given her the care she required. All the afternoon and evening she had lain, hoping her papa would come home and stay. Her only companion as the hours dragged slowly by was an old doll, as ragged and forlorn looking as the child herself, yet wonderfully dear and comforting to Mercy. At last her father had come but more under the influence of drink than usual, to brace him up for the crime ahead. She welcomed him gladly and for a few minutes played about but soon lay down again. He petted her and tried to prepare her some food from the scanty store they had, but she would not eat, for it was medicine and care more than food the child needed.

Joyce grew restless. He had hoped that Mercy would fall asleep and that he could steal quietly away without her knowledge but she started uneasily at every sound and apparently could not sleep. At length the time came when he must go if he would keep his appointment with Black and he arose. Mercy looked at him pleadingly and begged him to stay with her. If he had been himself he would have realized her condition and not have left her. As it was he almost determined to break his agreement with Black and stay at home, but the thought of how much might be gained by the night's work overpowered his other reasonings and he decided to go. Alas for the reasoning of a mind bent upon crime. He kissed her good-bye and went away with her childish pleadings still ringing in his ears.

After he was gone Mercy lay and cried softly to herself; starting at every sound and shrinking in terror when a flickering street light cast fantastic shadows on the wall. Worn out at last she went to sleep with the angel of death hovering over her.

Soon after midnight Joyce and Black stood in front of the house they intended to rob. They were going to search for the money and if they could not find it they were then going to force the old couple to tell where it was hidden, secure it and make their escape. Black easily forced the lock and soon they were inside the house and the search was begun. The old man was a light sleeper and fancying that he heard someone moving about he quietly arose and securing a gun went on a still hunt for the intruders and came upon them unawares. There was a cannon-like roar from the old shot-gun and Black, with a scream of agony fell dying on the floor with a great hole torn in his chest.

Joyce made a dash out of the room before the old man could fire again, but as he ran across the lawn the owner of the house fired at him but failed to hit him. Out of the yard and down the street he ran. Now he heard someone coming on a run and he dodged into the nearest alley and stood quiet while the policeman on the beat ran by on his way to the scene of the disturbance. Residents of the neighborhood were making their appearance at doors and windows and Joyce slipped away as quietly as he could.

Before long Black's body would be recognized and the police would be looking for him as his companion in crime, and

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low as he had fallen the thought of the disgrace stung him sharply. How miserably his plans had failed. At last by unfrequented streets and alleys he reached home. Mercy opened her eyes with a start of terror as he entered the room and lighted the lamp. For an instant she knew him and stretched out her arms with a smile and then her mind wandered and she babbled of other scenes and other days when they were happy and life apparently held something in store for them beside misery and suffering.

Joyce was sober. The events of the last hour had made him so and he realized fully now how terrible was his situation. He a hunted criminal, an outcast, compelled to leave his dying child alone and uncared for. He could not even go for aid for he had not the courage to look another man in the face, his conscience accused him so loudly. He got some cool water and bathed her face and temples and as he bent over her tears ran down his cheeks and fell upon her. Every moment he expected the officers to break in upon him, but they did not come. In his present misery he had almost ceased to care if they did. At length she opened her eyes with the light of reason in them.

"I am so glad you come, papa. I have been so lonesome and afraid. Don't leave me alone any more, papa. It is getting so dark."

He bent his face close to hers and she threw an arm convulsively about his neck. His groans alone broke the silence. The arm relaxed and fell on the bed; there was a long drawn sigh, and Bernard knew all was over. He smoothed the clothes about her and then stood for a time looking down on the pale face, his conscience lashing him cruelly for his neglect, a neglect he alone was not responsible for. Then he went to a table and wrote a few lines on a scrap of paper, asking that some charitably disposed person would see that she was laid beside her mother in M——— Cemetery, and pinning it to her sleeve, he pressed his lips to hers for the last time and went out. He walked across the street to the house where the old German woman was staying and calling her out, told her that Mercy was very bad and asked her to go over a little while until he summoned aid, and she, kind soul, went at once and he fled away into the night.

Along the streets, turning this way and that, he went until he came out on the docks down at the lake. The sun was just tinging the east with red as he looked back over the city showing dimly in the early morning light, full of avarice, oppression, vice, crime, misery and suffering. He had felt the effects of all, but soon he would leave them behind. He thought of his wife, of their early efforts to succeed in the battle of life, of the sweet little girl now lying dead back in that miserable old tenement. What a wretched failure the world would say his life had been. Was it all his fault? Perhaps he could have done better, but there were those in high places who, by their unjust oppression, had started him on the downward road and followed him until he was far along it. They had robbed him of work, his family of food, and virtually of life. For him there was nothing left but the lake, and he sighed as he looked down at the lapping waters. There was a plunge, and an eddying ripple to mark the end of a great human tragedy.

Hope

Somewhere out on the blue sea sailing,
Where the waves dance and spin;
Beyond the reach of my eager hailing
Over the breakers' din,
Out where the dark storm clouds are lifting,
Out where the blinding fog is drifting,
Out where the treacherous sand is shifting,
My ship is coming in.

—Anon.

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Trying to Kill the Safety Appliance Law

IT SEEMS not difficult to find some judge who is willing to undertake the job of killing every law that is enacted for the protection of employes. As long as the present practice of permitting the employing class to dictate appointments to the federal judiciary nothing else can be expected. A President of the United States who appoints corporation lawyers to such positions lends his aid to such efforts to destroy protective legislation, and paves the way for defeating the will of the people. As long as the President delegates life-long legal servants of trusts and corporations to interpret laws restricting powers and privileges of such trusts and corporations he certainly must intend that such interpretations are to be liberal or partial to trusts and corporations. The people of the United States have greater grievances against their judiciary than they ever had against their King George, and the latter were adjusted far more easily than will be the present disputes. It was Thomas Jefferson that foresaw the usurpation of power by the judiciary, and he believed that the revolution against the King would some day have to be repeated against the judges. It was the Supreme Court of the United States that caused, or hastened, the Civil War by attempting to extend and perpetuate chattel slavery. The issue then was master vs. servant, and the issue will always be master vs. servant.

The latest service performed by a federal judge for corporations is the decision that practically kills the Safety Appliance Law, by which it is decided that automatic couplers need not be "automatic" with any other type of coupler. For instance, a most absurd coupler, one that would not couple with any other coupler ever known, might be placed upon cars, and the placing of these couplers into service might result in the death of a thousand employes annually, yet, according to the court, it would not be a violation of the Safety Appliance Law, because the man-killer would couple with another coupler that was just like it, one that had the ability to kill just as many men. This is an entirely new interpretation, one sufficiently valuable to railway corporations to justify them in making members of the judiciary eligible to their pension schemes.

This decision has come at a time when it will defeat efforts of the Interstate Commerce Commission to protect lives of railway employes. The secretary of the commission, Mr. Edward A. Mosely, has addressed the following communication to the House of Representatives:

Interstate Commerce Commission,
Office of the Secretary,
Washington, D. C., Jan. 7, 1903.

Dear Sir—Inclosed please find copy of a recent decision by the eighth United States Circuit Court of Appeals in the case of Johnson v. the Southern Pacific Company.

In this case the safety appliance act of March 2, 1893, is construed, and it is held that if a carrier equips its cars with couplers which will couple automatically with those of the same kind, it complies with the requirements of the statute and that the act does not require cars used in interstate commerce to be equipped

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with couplers which will couple automatically with cars equipped with couplers of other makes.

If this ruling should be upheld on appeal to the United States Supreme Court it would have the effect of nullifying the purpose of the statute in a vital respect, which is to secure such uniformity in applied automatic coupling devices as to permit all cars in a train to be coupled and uncoupled without requiring men to go between the cars. Carriers are left free by the statute to use any kind of automatic coupler they see fit, the general and governing restriction being that no cars shall be hauled or used on the line which do not couple automatically by impact or can not be uncoupled without men going between the cars; and the commission has assumed that this applies to the hauling of all cars, whether owned by the carrier operating a given road or by other carriers.

Plainly, if carriers use different types of couplers which do not work automatically with each other, the law is defeated when a carrier undertakes to haul two cars so equipped in the same train. This was pointed out by the commission in its report to Congress for the year 1893 and has apparently been so understood and followed by carriers generally throughout the country.

The above-mentioned decision by the Court of Appeals is in conflict with that construction of the statute, and it would, if finally affirmed, permit the use of many different types of couplers, each type working automatically with those of the same description, but not with any other, and authorize the hauling of cars in the same train which could not be coupled or uncoupled without the aid of men going between the cars.

It is unfortunate that this remedial statute, which has proved such a benefit to railway employes and the public, should be rendered nugatory in a most important particular by a decision in a case brought by an individual to recover personal damages, without the Government's representative being heard upon a proper construction of the statute. The far-reaching and disastrous effect of this decision upon the operation of the safety-appliance act is my excuse for calling it to your attention.

Very respectfully,
EDW. A. MOSELEY, *Secretary.*

HON. D. B. HENDERSON,
House of Representatives,
Washington, D. C.

• Certain influences are at work to secure great increase in salaries of federal judges. Their services have been sufficiently appreciated to bring to the support of the bill a strong lobby. In discussing the bill in the House, Representative Cochran, of Missouri, is quoted as saying:

"Were a judge to drop dead in Washington tomorrow, before the widow's tears were dried the corporations would pick out his successor, and he would be appointed. We must go back to first principles and throttle the monoplies, or they will crush us. An honest and upright judiciary would eliminate the offensive conduct of the trusts within six months or a year."

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Increased Wages and Increased Living Expense.

The recent increases in wages of working people are more than offset by the increased living expenses, the only advantage of 1902 over 1894 being the opportunity to secure employment. The following are expressions of opinion by representative labor publications:

A general advance in wages is invariably and almost immediately followed by a rise in prices, especialy of the common necessities of life. Luxuries such as high-class wines, cigars, etc., and table dainties like game and hot house fruits, things that never appear on a workingman's bill of fare, are not touched, but bread, meat, butter, potatoes and such staples mount skyward. Many instances could be cited to prove this fact and show that no matter how wages advance labor has to pay back the increase sooner or later.—Machinists' Journal.

While the great captains of industry are piling up colossal fortunes their employes, even in cases where wages have increased 10 to 25 per cent., must figure more closely than ever before to keep their living expenses within the limits of their incomes. The only feature of the present industrial situation, therefore, which is favorable to the laboring man is that employment is continuous and more easily obtained. The profits to the employer are the gauge by which the demand for labor is set, and the fact that the demand for labor is so great at the present time simply indicates the further fact that the employers of labor are making greater profits than ever before on their contracts. * * * It is not satisfying to the workers who always have steady employment the year round, and it should not cause even those who in the past have been irregularly employed to be content with less than a fair equivalent for their labor just for the sake of being employed, for if there is ever a time when labor can ask and receive a fair reward it is, to use a metaphorical expression, "when there are two jobs looking for one man." Even then labor is not fairly compensated unless it is intelligently sold through an organized agency.—Advance Advocate.

According to statements in the daily press the railroad men of the country are to be envied. They have secured a large increase in wages, shorter hours, besides several other concessions, and all because the corporations are getting good-natured

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and want to divide their profits with their employes.

But there is another side to the story. While wages were standing still, house rent, coal, meat and several other little things that railroad men use once in a while, were gradually going upward until the time had come when the amount drawn from the pay car would not balance the bills run during the month, not to mention such superfluous items as going to a theater, pianos, lace curtains, nice furniture, etc.

The workingman or his family has no need for such luxuries. They are only for the rich, and we have high and mighty officials of state whose salaries are secured from the taxes levied and paid by the workingman, who do not hesitate to say the same thing.—Switchmen's Journal.

Advances in wages by some twenty of the largest railroad systems in this country is said to effect 650,000 men and that the increase will total something like $17,000,000 a year or a little over $26 per year for each man affected. This may be increased to $30. It is not large, but it is considerable. On top of this comes the news of increases here and there which will affect probably 350,000 other workers or a million in all. But why did this raise in wages take place. It certainly was not a political move or they would have raised before election or even just before the next election. But the increase comes after the elections and there are no important elections for two years. It is plain that if these great employers of labor wished to affect political action they would raise wages say about September, 1904. No, they didn't raise them for or because of any political effort. But they did raise them because they recognized the demand of the organized workers for an increase, for mark you, in most instances there was a demand, and it was



A PENSION SCHEME

Magnate: "My good man, I am going to reward you for your thirty-five years of service. You have earned $2 a day. In fifteen years from now I shall retire you on $6 a month."

Employe: "P-p-p-ardon me, but won't that be r-r-obbing yourself?"

—*The Cleveland Plain Dealer.*

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organization that made the demand. Would the railroad workers have secured any increase in wages had there been no organization of railway workers? No.

Here then is a plain and clear illustration, an illustration that ought to impress itself upon every wage worker throughout the land. Trades' Union Organizations is the party that secured the seventeen or twenty million dollars increase for the next twelve months.

Will the workers ever understand that they can win almost any victory they seek if they will but once perfect a thorough organization? This object lesson ought not to be lost. It ought to bury itself deep into our brains, it ought to be the means of bringing a million men into the unions, that it will bring many thousands there can be no doubt.—Shoe Workers' Journal.

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*Coolie Labor in the Philippines.**

I wish to speak of the proposition that has been made by Professor Jenks, to introduce coolie labor into the territory pertaining to the United States in the Philippine Islands.

This proposition, which is contained in a report made by Professor Jenks to the War Department—it is therefore an official document, and not merely the "ipse dixit" of an individual—is supported by the pressure of capitalistic interests in the Philippine Islands.

One representative of these interests was reported in an interview in the papers as saying that he came for the purpose of using his influence that this bill, a bill in favor of the importation of coolie labor into the Philippine Islands, shall be passed, and when questioned whether negroes might not answer in Hawaii or the Philippines, his answer was that the negroes were not as abject and as docile as coolies, and that therefore they were not wanted.

So we want abject and docile labor in the new territory of the Republic!

Perhaps, by and by, we shall want some kind of abject and docile labor in the older territory of the United States.

My contention is that this proposition —just to put it clearly before you—it is the proposition that Chinese in considerable numbers shall be imported into the Philippines, that they shall be penned up in the district in which they work, not permitted to escape from it, not permitted under any pretense to settle in distant parts of the island, and that after three years they shall be sent back to China, unless especial permission is given to prolong their term of service. My contention is that this proposition is a proposition to re-establish or to restore, in a modified form, human slavery in the territory of the United States, forty years after we went through the bloodshed and struggle of the Civil War, in order to banish human slavery from the territory of the United States, as we thought, forever.

Do not suppose for a moment that this is an academic question. These great changes in our policy slip in unawares. People have not made up their minds, they are in a state of suspended judgment with regard to them; they say neither "Yes or No," and, in the meantime, those who want it, push the thing through, and succeed in getting it, because of this state of indecision. So there is the greatest danger that some day we may find the bill for the introduction of coolie labor passing the House and the Senate, and in the meantime people have not made up their minds, and I want to do what I can, with others—and we propose to do it—that people at least shall know what the proposition is that is now submitted, and what is its nature.

Do not let yourselves be deceived by assimilating this scheme of coolie labor to other forms of involuntary labor. For instance, to the apprenticeship system, where also the personal freedom of the apprentice is taken away while he is at work. The apprentice is a minor. That makes all the difference in the world. Just as you do not let your child have unrestricted personal freedom for his own good. The apprentice is a minor, and he is being educated for a trade.

It has been said, and very strongly urged by Professor Jenks, that this is a contract, that the coolie laborer contracts of his own accord to go into this form of service, and that, therefore, it can not be slavery, since it rests on contract. Now, my contention is that this sort of contract is no true contract, that the name is only used to throw dust into the eyes of superficial reasoners. Judge Holmes says in his Book on Common Law, "If when a man promised to labor for another, the law made him do it, his relation to his promise might be called a servitude with some truth. But this is what the law never does." But this is exactly what the law does in coolie contracts. It makes man labor after he has said he will not labor. It does not accept damages if he runs away or refuses to labor. It makes him labor. It catches him and takes him back to his employer and says, "Here he is; go on, work him." Therefore, I say the coolie contract is misnamed contract,

*Address by Dr. Felix Adler.

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that it is not a contract at all, because it lacks the essential feature of damages, because it makes a man labor whether he wants to or not. He may have received news of the death of parent or near kinsman; he can not go. He may have conceived a deep disgust for his surroundings, for the companions with whom he labors, he may find horribly cruel task masters, he can not break his service; he has bound himself, is penned to this district and with this man. I call this slavery, qualified slavery, because it is not for life and because he has entered into it, as it is said, with his own eyes open. But still it is slavery while it lasts. Professor Jenks said the whole question turned upon this, whether coolie labor is, as I maintain, a qualified form of slavery or not, and if it is, then it must be condemned as a monstrosity.



THE SOUTHERN PACIFIC WRECK

On January 28th, Train No. 9 collided with No. 8 (the Atlantic Express) fifteen miles east of Tucson, Arizona. No. 9 was running at a speed of fifty miles per hour and No. 8 was making about twenty-five miles an hour at the time of collision. Failure of operator to deliver order caused the accident. Both engineers and one fireman and many passengers were killed and burned. This view shows the search for remains in the charred wreckage. See letter in correspondence for particulars

The historical connection of coolie labor with slavery is clearly traceable. Immediately after slavery was abolished, the former slave owners of Cuba and Peru especially, and the West Indies, resorted to coolie laborers as substitutes. You have the connection there. It is a matter of history. And, oh! The horrors of that early coolie trade! They remind one exactly of what happened with slaves.

It makes no matter at all, whether, as some say, possibly the condition of the coolie may be even better than in his native land, that he may return with his wages to China and have improved his condition; that does not concern us in the least. It was often said in the days of slavery that after all the condition of the slave under a good master—and the great majority of the masters were fairly good—was better than in the wilds of Africa under his own native chief, exposed to despotism of the barbarous and savage kind. It might be so, and it might not be so. It did not concern us. The question then was, Did we want slavery in the United States? The question now is, Do we want the coolie system in the Philippines? The question as to what shall be done with the Africans in Africa, or the Chinese in China, to improve their condition, is a totally different consideration.

Why is it that the proposition is made? Why coolie labor, Chinese labor in the Philippines? Why not develop the Philippine Islands with free labor, the free labor of the Filipinos? Professor Jenks himself says in his article, that one employer of labor at least, found among twelve hundred two hundred Filipinos who were perfectly competent and satisfactory. If there were two hundred, there must be many such two hundreds. Why not content ourselves with the two hundred for the present and start the great

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campaign of education. Schools! Schools! Schools! Agricultural schools, industrial schools. The people are teachable, clever, intelligent, have taste. Why not develop them along the lines of handicraft and make them tillers of the soil? Why not be patient for fifteen or twenty years, until the schools have done their perfect work? Why not?

We have gone into the Philippine Islands with high moral professions, to do an ethical work on a national scale. Duty sent us thither. We must elevate and develop a great people, but there has been all along another wish in our hearts, and I am afraid that that, as the event shows, was the primary wish to make money out of these Philippines. And that is the reason why we can not wait; that is the reason why we can not allow the schools to do their work for ten or twenty years, and train industrial laborers. That is the reason why we are not content with the two hundreds that already exist. That is the reason why we are insisting that Chinese coolies shall be introduced into the islands. That is the reason why we do not shrink, at least some of us do not shrink, for the sake of commercial greed, from reopening on the body politic the cicatrized wound of human slavery.

* * *

Child Labor in New York City.

There has been a great outcry of late in the North against child labor in the South, particularly in the southern cotton mills; but it now appears, according to the New York Tribune, "that we need to turn our attention homeward." It has been found that about 16,000 children under fourteen years are employed in New York City in spite of the law, and it has been claimed by workers among the poor that more child labor exists in New York than in all the States of the South combined, which The Tribune calls "a remarkable revelation." An independent body, known as the Child Labor Committee of New York, has investigated the matter, and in its report declares that "grave defects exist in the present Child Labor and Compulsory Education law, to the great injury of the rising generation and of society at large." In spite of the effective work of the State factory inspectors and the city board of health in the enforcement of the present law, children are employed before the educational test has been complied with, and they are employed under the legal age of fourteen. The committee indorses the position taken by Governor Odell, in his message to the Legislature recommending the amending of the child-labor laws, and has already entered on its campaign for legislation on the subject. The committee in its report cites some phrases of the law and shows the defects "due to the loose phraseology." The law says that children shall not be employed under fourteen, but this allows them to work "if they are accompanied by a parent or elder brother or sister who is paid for the child's work (the child's name not appearing on the pay-roll)." The ten-hour law for children under fourteen "is made difficult and almost impossible of enforcement by a clause which allows any day to be lengthened on condition that a shorter day is made of Saturday." The law allows vacation work for children twelve years old, but the committee states that "only with great difficulty can children who work during vacation be taken out of the many factories and stores in which they are widely distributed and returned to school." The report adds:

"The statutory definition of those occupations which constitute factory or mercantile work has several times been amended, but is still incomplete. Office boys, messenger, delivery, and express boys, etc., who have been protected by similar laws in other States, do not receive that protection in New York. If, in addition to a better definition in the mercantile and factory laws, the statutes were extended so as to deal with street work, all children working for wages should be protected by law. This is most desirable as a re-enforcement of the Compulsory Education law. A measure for regulating street trades was proposed and powerfully supported under the last administration.

"The Compulsory Education law requires of children twelve years of age merely that they should attend school eighty days. The child-labor laws say that the children shall not work until they are fourteen years old. This lack of agreement between the two laws is perhaps the most serious obstacle to the proper enforcement of either. The inspectors of this and other States agree that the enactment and proper enforcement of such a Compulsory Education Law as that now being urged by the Association of Superintendents of Education is at the same time the most important measure for the restriction of child labor."

The work of investigation is being continued under the direction of Miss Helen Marot, says Charities (New York), and one of the "most striking features" has been the "large number of children found beyond the pale of the present law." These include the newsboys, bootblacks, peddlers, office boys, messengers and telegraph boys and those who deliver for the

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express companies. There are children who deliver milk from four in the morning until the opening of school, and others who work before and after school. Twenty-eight of the newsboys questioned made less than $1 a week. Out of 100 newsboys, 67 were twelve years old or under. Those of the boys who go to school sell their papers after 3:30 in the afternoon until as late as midnight, and some later. The condition among the delivery boys seems to be worse. The committee investigated the case of an express company that employed children of 11 years and upward from 7 in the morning until about 9 and 10 at night. On Friday and Saturday nights they work until midnight, and, if all the packages are not delivered at midnight on Saturday, the children have to work on Sunday.

One of the investigators, Mr. Poole, of the University Settlement, as quoted in Charities, found near Newspaper Row over one hundred boys sleeping in the streets. "Other hundreds sleep in stables, condemned buildings, back rooms of low saloons, and halls of tenements. This sleep they piece out at intervals." He found boys between the ages of 12 and 16 working in the Chinese quarter of the city, cooking opium pills and running errands for the white women who frequent these dives, from 8 p. m. until after 8 the next morning. In Wall street, too, Mr. Pool found hundreds of stock-runners below 14 years of age.

"Compared to this the child slavery of the South is the greatest freedom," says the Memphis Commercial-Appeal. "There is nothing in southern factories," it adds, "to be compared to this, and yet the evils that exist in southern factories might be abated." The Philadelphia Record remarks that "if private persons can find cases enough to warrant organization, there can be no excuse for the paid agents of the State whose sole duty is to maintain the integrity of the law."

Among the executive officers of the Child Labor Committee are Dr William H. Maxwell, superintendent of public schools in New York; William H. Baldwin, Dr. Felix Adler, and Robert Hunter. Other prominent persons behind the moveemnt include Dr. Lyman Abbott, Jacob A. Riis, Robert C. Ogden, and Bishop Potter. —Literary Digest.

Court Decisions

Collision—Fellow-Servants.

ELZIE N. HOWE was fireman on No. 13, a mixed passenger and freight train on the Northern Pacific Railway, running from Cheney to Coulee City, Wash. On the day of his injury a snow-plow train had been sent ahead of the passenger train to clear the road and prepare the track for the passenger, and at a point about six miles east of Almira, No. 13, upon which Howe was firing the lead engine, ran into the snow plow, and Howe was injured by the collision to such an extent that his leg had to be amputated. Suit for $25,000 damages on this account was brought by Howe against the company, with which were joined as defendants the superintendent of the division and the chief dispatcher of the division. The trial resulted in a verdict for $15,000 against the company, the other defendants having been dismissed by the court. An appeal was taken to the Supreme Court of Washington, where the judgment was affirmed. The court in substance held:

In an action for a fireman for injuries sustained in a collision it was proper to join with the railroad as parties defendant the division superintendent and division train dispatcher.

A collision of trains is prima facie the result of negligence, where the rights of passengers and of railroad companies are in controversy.

A fireman who was injured by a collision of two trains can not be held a fellow-servant of both or either conductors.

Negligence of a fellow-servant concurring with the negligence of the master does not excuse the primary negligence of the master for injury to another fellow-servant.

As the opinion is quite interesting and important we give part of it in full:

"We have examined the record in detail and, although it is voluminous, we have been unable to discover any reversible error, either in the admission or rejection of testimony or in the giving or refusing to give instructions. But even if slight error had crept into some of the proceedings in relation to the proof of negligence, we think, under the theory of the appellant, that it would not have been prejudicial, and that the court would have been justified in instructing the jury that negligence had been proven. It is settled law that a rear-end or head-end collision is prima facie the result of negligence, where the rights of passengers and of railroad companies are in controversy. If any different rule obtains in a litigation between the railroad company and an em-

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ploye who is injured, it must be upon the theory that the employe is in some way responsible for the negligense, either through contribution on his part or contribution by a fellow-servant. It is conceded and asserted in this case that the conductors on both trains, viz., the passenger train No. 13 and the snowplow train, were guilty of negligence, and that the accident would not have happened had it not been for such negligence. After discussing the rules which provide the duty incumbent upon the conductor to use certain precautions in cases of this kind, and referring to the fact that train No. 13 left Almira only ten minutes after the snowplow train, and the assertion that the officers are charged by the rules with the duty of assuming that another train is coming when their train is delayed, that explosive caps or torpedoes are provided for placing upon the tops of the rails as signals to be used in addition to the regular signals; and many other precautionary provision—the appellant says: 'It is shown by the record that trains very often lose time or actually have to stop between stations. This has been true ever since railroad trains commenced running, and because of this all trains were equipped, as this snowplow train was equipped, with appliances to protect them ahead and in the rear. These appliances are so effective and so easily used that there is no occasion and no reason for a rear-end collision of this sort, except in the instance where the train crews are wholly negligent and careless in the use of the signals, or in the entire failure to use them. It will be noted that there was no careless or negligent use of the signal appliances which were on this snowplow train. They had the appliances, they had torpedoes, they had fuses, and they had lanterns; but, instead of there being a negligent or careless use of them, they did not use them at all. Any one of these signals would have avoided a collision or accident of this sort. A torpedo placed on the track, even though there be but one, is a signal for any following train to stop until it has burned out. * * * There was a conductor on the train, who could have done these things; there was a rear brakeman on the train, who could have done these things; and every single one of these men knew and must have known that train was losing time from the moment that it left Almira; and every one of these men knew and must have known that a fast-running passenger train was behind them, running in the same direction. It is almost inconceivable under such circumstances, and almost impossible to believe, that these appliances for their protection were not used; but they were not, and thus the injury was caused.' Like negligence is attributed by the appellant to the managers of both the snowplow train and the passenger train. This charge must be made upon the theory that the fireman was a fellow-servant with the conductor of the train, and that, therefore, the negligence of the conductor was the negligence of the fireman. We can not con-



THE SOUTHERN PACIFIC WRECK NEAR TUCSON, ARIZ.

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ceive that it is the duty of the fireman to assume or know that the conductor has done his duty—a duty so plain and palpable as is charged upon him by the appellent in this case; or that he is to leave his box, and establish a surveillance over the conductor and other operators of the train. Such conduct on his part would not only be unbecoming or intolerable, but, if tolerated, might lead to the gravest results. There must be some one in control of trains of cars while in transit. There must be some directing mind, some particular person in whom responsibility is lodged; and it would lead to most disastrous confusion if the practice obtained to confer responsibility and directing power equally and miscellaneously upon conductors, brakemen, engineers, firemen, and other operators of a railroad. The proof of such a practice would be the strongest proof of negligence. But it may be confidently asserted that no such practice prevails. It is a matter of common knowledge that the conductor of a train under ordinary circumstances is the controlling power. His official title indicates it; and the assumption of the master's authority by him, together with the actions of the company towards him, proves it. As was pertinently said by the Supreme Court of the United States in Railroad Co. v. Ross, 112 U. S. 377, 5 Sup. Ct. 184, 28 L. Ed. 787: 'The conductor of a railway train, who commands its movements, directs when it shall start, at what stations it shall stop, at what speed it shall run, and has the general management of it, and control over the persons employed upon it, represents the company; and therefore that, for injuries resulting from his negligent acts, the company is responsible. If such conductor does not represent the company, the train is operated without any representative of its owner.' But, whatever may be said of the doctrine of fellow-servants in other jurisdictions, under the uniform holdings and announcements of this court the fireman on this train can not be held to be a fellow-servant of the conductors on both or either of the trains which collided, and the negligence which led to this collision is proven upon both equally. The negligence of the company was so overwhelmingly proven in many instances in this case that, even if there had been negligence on the part of some one who might be construed to be a fellow-servant of the respondent, the appellant would not thereby be relieved of its responsibility. Railroad Co. vs. O'Brien, 1 Wash. St. 599, 21 Pac. 82. It is uniform authority that, if negligence of the master contributes to the injury, he is liable, even though the negligence of a fellow-servant was contributory. Railroad Co. vs. Cummings, 106 U. S. 700, 1 Sup. Ct. 493, 27 L. Ed. 266. This principle has been uniformly followed by this court, and was again announced in Ralph vs. Bridge Co (decided December 23, 1902) 70 Pac. 1098, where it is said: 'It is also well settled that, if the negligence of a fellow-servant concur with the negligence of the master, it does not excuse the primary negligence of the master for injury to another fellow-servant.'" Howe vs. Northern Pac. Ry. Co. et al., 70 Pac. Rep. (Wash.) 110.

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Acts Held Not Negligence.

In an action against the Chicago, Rock Island and Pacific Railway Company to recover damages for the death of Charles J. Goben, the Iowa Supreme Court recites the facts in full in the opinion as follows:

"For some time immediately preceding his death, and at the time thereof, Charles J. Goben was at work for the defendant as a fireman on one of its switch engines in its yard near Valley Junction, Iowa. This yard is situated about five miles west of Des Moines, which is a division point on the line of the defendant's road, and is extensively used for the storage and movement of engines and cars. On the twenty-second day of June, 1898, at about 6 o'clock in the morning, the engine which the deceased fired, known as '34,' was standing on the storehouse track in the said yard, and was in his charge. It was steaming at the time, and a considerable amount of the steam was escaping from the angle valve located near the forward end of the engine. About 9 feet south of the storehouse was another track, and coming from the west on this track was another switch engine, which at the time was running at the rate of five or six mile an hour. This engine was operated by an engineer and fireman, who had also been at work in the yard for some time, and was known as '46.' Engine 34 was first seen by the fireman on engine 46 when about 350 feet west of her, as they were going east. At that time no one was in sight around 34. When 46 got within 80 or 100 feet of 34, the deceased got out of the cab of 34, and walked east by her side to the angle valve from which the steam was escaping. He stopped there, took hold of the valve with his hand, and was apparently attempting to fix it. Both the engineer

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and fireman on engine 46 saw him leave the cab of his engine and go to the valve, and saw, in a general way, what he did there. The engineer of 46 was on the right side of his cab, and watched the deceased until his view was cut off by the front end of his own engine, which was then opposite the cab of engine 34, and when he last saw him he was still at work at the valve. The fireman of 46 watched the deceased until his engine was within 18 or 20 feet of a point opposite to where he was at work, when he lost sight of him by the intervention of the steam which was escaping from 34. The fireman testified that just at this moment Goben took his hand away from the angle valve and stepped backward, with his face toward his own engine. It was shown by the testimony of a witness, who was at the time some distance east of the point, that when Goben stepped back from the valve he faced a little northeast, and continued to step back until his feet were inside of the north rail of the track on which 46 was approaching. Goben was struck and killed, and the negligence charged was in the operation of engine 46, because of the failure to stop it when Goben was seen to take his hand away from the valve and step back, and because of the failure to blow the whistle while approaching, and more particularly at that particular time. Goben was perfectly familiar with the constant movement of engines and trains through that yard, and the engineer and fireman on engine 46 knew such to be the fact, and that he was the fireman in charge of engine 34. They were advised by his action in leaving his cab and going to the leaking valve that he was then engaged in the work of repairing or remedying some defect therein, and they would not have been justified in believing or assuming that he would leave that work and place himself in a position of danger. The bell on their engine was continuously rung as they were approaching the point where he was, and, while it is shown that he did not look toward them at any time, we think they had the right to assume, under the circumstances, that he knew of their approach, and that his familiarity with the work in the yard was such that the approach or passing of an engine occasioned no surprise, and called for no notice on his part. There was no negligence on the part of the defendant, and we need not discuss the question of the contributory negligence of the deceased." Brown vs. Chicago, R. I. & P. Ry. Co., 92 N. W. Rep. (Iowa) 662.



THE SOUTHERN PACIFIC WRECK NEAR TUCSON, ARIZ.

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*Canadian Court Decisions.**

An important judgment upon a point which has already caused much discussion was recently given by the Court of King's Bench, Appeal Side, for the Province of Quebec. Richard Ramsden was employed by the Grand Trunk Railway Company as a conductor, and on the night of January 10, 1900, he was in charge of a freight train on its way from Brockville to Montreal. The train came into St. Henri Junction under the protection

*From Canadian Labor Gazette.

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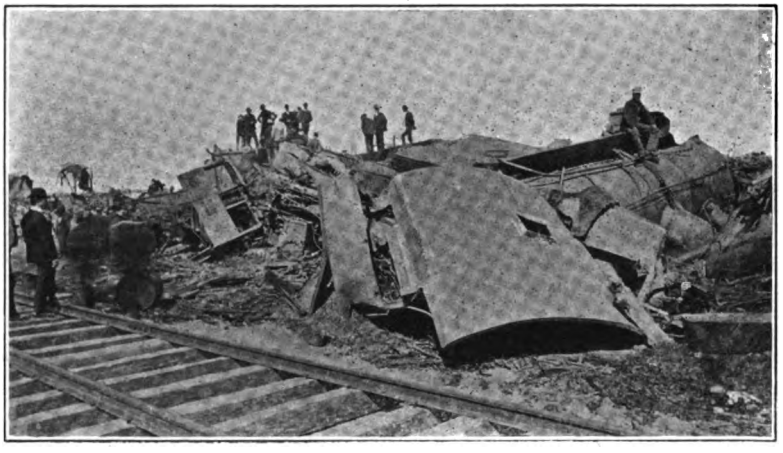
of a semaphore, and while waiting here was struck by the engine of the Lachine suburban train. Ramsden attempted to escape, but was caught between the engine and the first car of his own train and crushed to death. His widow sued the Grand Trunk Railroad Company, both for herself and on behalf of her five minor children, for damages, claiming that the accident was caused by the negligence of the company. The evidence showed that the sand valves and air brakes of the locomotive of the Lachine train were in a defective condition, and that the engineer in charge had repeatedly reported to the company that they were defective. In view of this fact the jury awarded $10,000 damages — dividing this amount into $6,000 for the widow and $4,000 for the children of Ramsden. This is the largest verdict which has been given in the province of Quebec in a case of this kind for many years.

Besides denying that it had been negligent, the Grand Trunk Railroad Company contended that in any event there could be no claim for damages, because Ramsden was a member of the Grand Trunk Insurance and Provident Society, a by-law of which states that all insured in the society waive any claim against the Grand Trunk Railroad Company for damages suffered whilst in its employment, in consideration of the annual sum which the company gives to the society. This is a point which arose in an earlier case, in which it is expected that judgment will soon be given. In this case it was decided that the point should be argued later before a court consisting of three judges.

This latter court gave judgment against the company; and, upon a further appeal being taken, the highest court in the province gave a unanimous judgment, confirming the judgment and verdict which awarded $10,000 to the widow and children of the deceased.

R was employed by P to work a hay-cutting machine, and while so doing his fingers were crushed. He brought an action against his employer, but did not bring forward any evidence which showed clearly the cause of the accident, or that the same was attributable to any negligence on the part of his employer. The action was therefore dismissed.

In rendering judgment Mr. Justice Trenholme remarked that the modern legislation prevailing in many countries put the employe in such a position that if injured he was generally entitled to compensation whatever might be the cause of the accident, unless it was occasioned by his own direct fault; under the law of the province of Quebec, however, it was necessary that an employe claiming damages from his employer for injuries received should prove that the accident in question was caused by an act or omission of the employer.



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Washington Gossip.

White House Doings.—It must be admitted that President Roosevelt manages to keep public interest at the top notch, whether it is a question of legislation or of social functions.

The remodeled White House is a source of considerable gossip in this city where people had rather gossip than do anything else under the sun. Now that Congress has discussed the changes it becomes almost an official matter. It certainly does strike a person with a sense of shock to see the historic and beautiful old building so completely remodeled that nothing is left as it was before except the front. Doubtless repairs and changes were needed. The building is probably much safer and more commodious than before, but it does seem like going a bit too far to have bundled out all the old furniture, with its historic associations and replace it with decorations which are new and crude, and in which you can find every style of decoration mingled from the antique to the renaissance, and even to art noveau. The east room and the dining room, particularly, are riots of color that make the ladies' gowns look pale and wan, and give gentlemen in evening dress an appearance of faded spectres. All this joyous effect was secured at an expense of $600,000 and Congress was asked at this session to appropriate $60,000 for repairs and maintenance on all this added gorgeousness.

Probably nothing would have been said about the expenditure, for we are getting more extravagant in Washington official life every year, if the effect of the alterations had been harmonious and artistic. But they are not, and hence the smothered criticism burst into open criticism when the bill came up before Congress. A good many conservative citizens think that some of the old furnishings might have been retained. It did rather jar on one's sensibilities to attend a White House auction held recently and see handsome French mirrors sold for $7.50, and finely carved mantles for $15. Of course, it was a nice thing for the purchasers who thus obtained historic souvenirs of great value for a mere song. I wish I could have bought some of them.

An unfortunate incident of the sale was the disposing to a Washington saloonkeeper of a sideboard presented to Mrs. Rutherford B. Hayes by temperance sympathizers. The sideboard was hand carved by a number of well-known society ladies and had been a conspicuous ornament of the White House dining room ever since the Hayes administration. The saloonkeeper bought it for $150, and refused to sell it back to patriotic citizens for less than $1,200, so it adorns a Washington beer garden. Rather an ironic commentary on the uses to which things come.

The President's new office building also comes in for mirthful comment. It has more doors than a refrigerator, and the Cabinet room looks on the public roadway, and the tourists feel that they get the worth of their money when they come to Washington and can see the President and Cabinet deliberating over matters of state—all as a free performance. It is a funny looking little building over at the end of where the conservatories used to be, and is connected with the White House proper by a corridor. The Washington Post calls it a wart on the White House grounds. Probably the office building will be only a temporary affair until permanent business quarters for the executive can be erected on some street in the vicinity of the White House.

But the Roosevelts do more entertaining than any presidential family in a long time, and entertaining is always popular. In fact they don't seem in the least to mind what people say about their housekeeping. President Roosevelt is more concerned over his increasing avoirdupois—he now weighs nearly 200 pounds—than anything else, except perhaps the way in which Congress refuses to do anything he desires in the way he desires.

Congress Amusing Itself.—The gray days of winter drag slowly, all too slowly, for the congressman who wants to have done with the farce of the short session. It is wearisome to pose before the country as being in a fine frenzy over trusts and Cuban reciprocity and statehood and all that sort of thing, when in their souls our august legislators know that any real action on such important issues is entirely out of the question at this session. It is almost amusing to hear House and Senate abuse each other about the anti-

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trust bills. Such accusations of bad faith made by political opponents would seem dreadful, but when they are exchanged by members of the same political family it merely means that each branch of Congress is trying to pose before the country as the defender of the people against the trusts.

As the House will pigeon-hole the Senate anti-trust bills, and the Senate will return the courtesy on the Littlefield and similar House bills, it seems to be a case of Alphonse and Gaston. The only thing in which the public is concerned is the sad fact that no regulation or control of trusts will be attempted by this Congress. Probably the next Congress will have a great appearance of activity about this time next year, but what will it accomplish.

Eight-Hour Bill.—On February 12th the Eight-hour Bill was scheduled to come up for consideration in the Senate. It was to have two hours for discussion and would presumably soon come to a vote. That day the Senate went into executive session and spent the whole time discussing the Panama Canal. When permission was asked to take it up next day, Senator Quay announced that he would not permit the consideration of the Eight-hour or any other bill until a date was agreed upon for a vote on the Statehood bill.

The above language is used advisedly, because Senator Quay has shrewdly managed a deadlock on the Statehood bill. He has the right of way for it and each day parcels out the time, which he might use on it if he chose for the consideration of any bills which he cares to designate. So he is dictator, and Chairman Frye is only a figurehead. Quay is rather favorably inclined to the Eight-hour bill, but all his inclinations are subordinated to the coldly practical business policy of permitting only such favors as will increase his votes on the Statehood bill. So the Eight-hour bill may even come to a vote. The labor representatives at the Capitol believe it will pass. If it does, it will be—in my opinion—because in its present form it is worthless to labor and so can do no harm to the prejudices which oppose it. However, it is extremely doubtful if it would pass the Senate and run the gauntlet of the joint conference committee in time to be placed before the President for his signature.

Decision of the Coal Strike Commission.—As this is being written the closing arguments are being made on both sides before the coal commission. Mr. Baer offered a slight concession, but showed how bitter he felt toward the Miners' Union. He is one of those narrow-brained people who can cherish the deepest and most bitter prejudices and honestly believe that the aforesaid prejudices are exalted virtues.

The decision may be made before this is printed, so prophecy is apt to be wasted, but it seems certain that the commission has no intention of recognizing the union, nor of shortening hours. The old erroneous assumption that shortening the hours lessens production seems to sway the commission, yet the fact is that in every trade which has reduced the hours from ten to eight has produced as much under the shorter hours, and has adopted improved methods of production as a result of more leisure for both employer and men. This seems a time-worn fact that everybody ought to know, yet even the miners' counsel did not state it in the argument for shorter hours.

Speaking about shorter hours, Secretary Shaw, of the Treasury, speaking before a business men's banquet recently, stated in a most spread-eagle manner that the President of the United States works eighteen hours a day. The statement failed to evoke enthusiasm. Business men—that is, successful ones—realize that no human being can work eighteen hours a day regularly and do good work. The wearied brain shirks the task. The eighteen-hour a day man, as a rule, confesses by that fact that he lacks the executive ability to surround himself with responsible people who can classify his work and carry out the details, leaving the managing brain free to deal with the important things which he alone can handle satisfactorily.

This argument, of course, applies only to people like Presidents and millionaires who have ample means to hire high-priced help. There be editors and writers, and enthusiasts of various orders, who know that they should do this but, alas, have not the means to keep other productive brains at work. But, as at matter of fact, the President is no eighteen-hour a day man, in the sense of sticking to his desk that long. He may stay awake eighteen hours out of the twenty-four, but he fills them with varying occupations of pleasure and business.

EVA MCDONALD VALESH.

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Labor Notes

Nationalizing Coal Mines.—Chairman Jenkins of the Judiciary Committee of the House introduced the following:

Resolved, That the Committee on Judiciary be and is hereby directed to investigate and report to this House with all convenient speed the opinion of that committee as to the power of Congress to declare that a necessity has arisen for taking possession of all coal, coal beds and coal mines in the United States, and all lines of transportation, agencies, instruments, and vehicles of commerce necessary for the transportation of coal, and that if in the opinion of that committee the power exists and a necessity for the exercise of such power has arisen, that that committee forthwith report to this House a bill declaring the necessity, providing fully and in detail the occasions, modes, conditions, and agencies for said appropriation that will fully and completely exhibit the power of Congress in that regard.

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The Maintenance-of-Way Employes.—At their most successful convention, recently held in St. Louis, the delegates of the Brotherhood of Trackmen changed the name of that organization to International Brotherhood of Maintenance-of-Way Employes, the purpose being to adopt a name that represented the classes eligible to membership. This name indicates that it is the purpose of the organization to unite trackmen, bridge men, etc., into one powerful union. May success attend so laudable an effort. The following are the officers for the ensuing term: Grand president, J. T. Wilson; first vice-grand president, A. B. Lowe; second vice-grand president, J. W. Davenport; third vice-grand president, W. W. Haygood; grand secretary and treasurer, C. Boyle.

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Growth of Socialism.—The Coming Nation is authority for the statement that the following has been the "Socialist vote of the world" for the years named:

1870.....	104,195
1880.....	318,766
1890.....	1,668,043
1900.....	3,544,495
1902.....	6,321,942

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A Moral for Trade Unions.—"And remember, gentlemen, that we shall be a potent factor for peace largely in proportion to the way in which we make it evident that our attitude is due, not to weakness, not to inability to defend ourselves, but to a genuine repugnance to wrong-doing, a genuine desire for self-respecting friendship with our neighbors. The voice of the weakling or the craven counts for nothing when he clamors for peace, but the voice of the just man armed is potent."—President Roosevelt at N. Y. Chamber of Commerce Dinner.

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Against Government by Injunction.—"We, the representatives of District 6, United Mine Workers of America, demand of the Congress of the United States, a law that will classify the cases that are subjects for the jurisdiction of the Federal courts when issuing injunctions in labor troubles.

"That Federal judges can issue injunctions in labor troubles only on the application or approval of two or more elective judges.

"That a reasonable time be fixed by the court, when the defendant shall answer to an injunction issued against him, but in no case shall the time exceed thirty days.

"That the applicant for an injunction in labor troubles must submit reasonable proof, in support of his application, for an injunction, under penalty of being imprisoned for perjury.

"That persons arrested for alleged contempt of court shall not be tried by the judge who issued the restraining order.

"That persons arrested for contempt of court shall have a trial by jury."

It was recommended that the executive board be instructed to adopt such means as was necessary to learn the attitude of every congressman.—Resolution adopted by National Convention of United Mine Workers.

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A Changed Policy.—The following from the Chicago American of February 1st, indicates that the Pullman Car Company has changed its policy since the stormy days of 1894:

The Pullman Car Company has agreed to pay every man in its employ full ten hours' pay for nine hours' work.

This announcement, made yesterday in bulletins posted in the works, is one of the greatest concessions to labor made in Chicago in months.

Nearly 8,000 men will enjoy the ad-

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vantages of the new schedule, which goes into effect April 1st. More than $70,000 will be added to the company's monthly pay-roll. More than 1,000 extra men will be employed to do the work performed in the tenth hour by the old force.

All this was accomplished by a committee appointed four days ago to confer with the management. The men were allowed even more than they asked. There was no hesitation or objection on the part of the management.

Under the old schedule of working hours the men worked sixty hours a week. Under the new system they will work fifty-four hours a week and still have their Saturday afternoons off.

Their day will commence at 7 o'clock. They will work through to noon. After forty-five minutes for dinner they recommence work and quit for the day at 5:30. On Saturdays they are through at 12:15.

The average week's wages in the Pullman works is about $15. Under the new system the wages will be the same, but the company wil get 42,000 hours less work each week for the same amount on the pay-roll.

The movement for a nine-hour day was started by the 500 employes of the brass department. Yesterday Chairman Wrigglesworth and his colleagues were summoned to the office and notified that their demand had been granted. Simultaneously bulletins were posted all over the works announcing that the nine-hour working day would be extended to every department.

At noon when the men quit work there was great rejoicing, and a mass meeting at which resolutions thanking the committee and praising it for its work, were unanimously passed.

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The Man You Elect.—Senator Beveridge is absolutely ignoring the demands that are being made upon him to assist in bringing the anti-injunction bill before the Senate. It has now been two weeks since the presidents of the five great railroad employes' brotherhoods of the country sent a personal letter to Senator Beveridge urging him as a member of the steering committee to use his influence to get the bill off of the calendar and before the Senate for consideration. The Senator has not shown the slightest indication of paying any attention to the notice and this measure, which has been so eagerly demanded by the railroad and other workmen in Indiana, probably will never be heard of again this session.—Washington Press Report.

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Growth of Labor Organizations.—It is the spread of unionism to the smaller cities and into the unorganized trades of the larger cities that particularly marks the present year. The increase in the aggregate membership of New York unions has of late been unprecedented, having been 53,000 or about 20 per cent. in the twelve months ended September 30; and of this gain all but about 3,000 was made since April 1. Between April 1 and October 1 the net gain in unions was 299, so that at the latter date the number of labor unions recorded by the Bureau of Labor Statistics was 2,229, with a total membership of 329,101, of whom 313,592 were men and 15,509 women. With the exception of New York City, the city of Schenectady made the largest gain in membership in the year (from 2,441 to 8,856) and that busy industrial center now outranks Syracuse, Albany, Troy and Utica. The next largest increase was in Glens Falls (from 609 to 2,795 members), while large gains were also made in Gloversvile, Auburn, Elmira, etc. The only large cities in which losses were sustained were Buffalo (less than one-tenth of 1 per cent.) and Troy (12 per cent.).—N. Y. Labor Bulletin.

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Increase in Child Labor.—Factory inspectors report children at work, in round numbers, as follows: Massachusetts, 9,000; New York, 16,000; Illinois, 20,000, and Pennsylvania, 35,000. The astonishing figures for Pennsylvania do not include the breaker boys in the mining regions, but merely the children engaged in manufacture and commerce. In Illinois the number of working children has more than doubled in the five years between 1897 and 1901. These figures afford thought for serious reflection. Whither is the nation drifting?—Typographical Journal.

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A Co-operative Grocery.—A few Chicago people started out to organize a co-operative grocery company with 200 members. Although only six months' old, yet 5,000 applications for membership have been received. A membership of 500,000 by July 1, 1903, is predicted. The little grocery store will be made a big department and mail order store. Co-operation, thanks to the trust promoters, is being universal.—Railroad Telegrapher.

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Official Circular No. 8

The Grand Master has addressed Official Circular No. 8 to all members. The following extracts from same being of special interest and importance:

Work of Vice Grand Masters for Seven Months Ending December 31, 1902.

	Wilson.	Shea.	Meier.	Total.
Lodges visited.....	48	34	88	170
Secret meetings	63	35	94	192
Addressed and instructed.....	1,403	663	1,215	3,281
Applicants initiated	84	23	27	134
Lodges organized...	4		7	11
Public meetings....	10		7	17
Miles traveled.....	23,545	5,737	28,440	57,722

Bro. Shea was elected at Chattanooga Convention.

During the six months ending December 31, 1902, there were 4,532 new members added to the roll of membership. The total membership of the Brotherhood on July 31, 1902, was 43,376; the total membership December 31, 1902, was 45,112. This shows a net gain in membership over all expulsions, withdrawals, deaths and disabilities for the six months of 1,736.

Home for Aged and Disabled Railway Employes.

As stated in Official Circular No. 3, the following resolution relative to the Home for Aged and Disabled Railway Employes was introduced at the Eighth Biennial Convention of the Brotherhood:

"That we donate $25,000 towards the Home for Aged and Disabled Railway Employes; this money to be taken from the general fund and to be returned to said fund from the interest moneys, of the various funds, except the beneficiary fund."

An amendment was offered and carried which ordered the matter referred to a referendum vote of the membership, and that if a majority of the members voting were in favor of the donation, the same should be paid. It was also ordered that the vote be taken within ninety days, which means ninety days from September 19, 1902, the date upon which the motion was put and carried.

Pursuant to the action of the Convention, Circular No. 3 was issued and sent to all Lodges, October 15, 1902, giving instructions as to the vote, together with such information as was deemed necessary to impress upon the minds of our members the importance of giving the question their earnest consideration, and the necessity of action being taken by each Lodge as promptly as possible, and to have the vote of the members reported to the Grand Lodge not later than December 18, 1902.

Blank ballots for each member were sent to all Lodges, with a ballot sheet to be used in reporting the result of the vote.

After waiting until it was possible for the returns of the various Lodges of all votes cast within the ninety days to reach the Grand Lodge office, the ballots were counted and the following result obtained:

Total number of members voting..18,263
Number of members voting in favor of the donation.....14,076
Number of members voting against the donation 4,187

It will be seen from the foregoing that a majority of the members voting have voted in favor of the donation, and therefore the sum mentioned above will be paid to the person or persons duly authorized to receive the same.

The Future Outlook.

When we take into consideration the magnificent record made by our Brotherhood during the past six months, there is every reason to believe that the out-

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look for the future of our organization is very promising. The year 1903 opens under the most favorable auspices for our Order, and if the same interest is manifested during the next six months, there is every reason to believe that the results will far outshine in every respect all records of the past, and the work accomplished will be such as will fill with pride the heart of every brother and stimulate him to put forth every effort in his power, to the end that when the present year closes the records will show a membership of 50,000 members in good standing. It is within the bounds of possibilities that this can be accomplished and if each and every member will do his part to assist the Vice Grand Masters in the field of continuing the good work which they have accomplished in the past, there is no reason for believing that we will not reach the 50,000 mark.

Joint Protective Board Work.

We can not refrain from calling the attention of our membership to the fact that never before in the history of the organization has there been so much good work accomplished by the Joint Protective Boards of our organization. Through their influence, together with the assistance of the grand officers, numerous new schedules have been adopted on the various railway lines that have not only improved the condition of the firemen in so far as hours of labor and advantages gained in the way of their being relieved of extra work, but very flattering increases in wages have been obtained. The many improvements that have been made in the condition of our men on the various trunk lines throughout the country is certainly very gratifying. The results in many cases have been truly phenomenal and this itself should encourage the membership to be still more faithful to the organization, if possible, in the future than they have been in the past.

Ladies' Society.

In my travels throughout the country it has been a pleasure to note the good work that has been accomplished by the Ladies' Society of the B. of L. F. A number of instances have come to our notice where our Lodges owe a large amount of their prosperity to the assistance that is given to them by the Ladies' Society. The members of said Society seem to vie with each other in their efforts, not only to make their Society a success, but in every way possible to advance the interest and welfare of the lodges of our organization and there is no denying the fact that they are accomplishing a great work in this direction. It is the duty of the members of our organization to do all in their power to assist the ladies in making their organization a success and we hope that our members will not let an opportunity pass by that will enable them to do what they can to build up the Ladies' Society of the B. of L. F. They certainly deserve the encouragement and assistance of every member of our organization and we trust that all will join hands and do what they can to help them along.

The Vice Grand Masters.

It is a pleasure to me to bear testi to the fidelity and earnestness of the Vice Grand Masters, as shown by the good work accomplished by them during the past six months. They have been continually on the road both day and night, and have not lost an opportunity at every point they visited to put forth their best efforts in advancing the cause of our organization. They are in daily correspondence with the Grand Lodge office and we are in a position to know that it is scarcely possible for them to have done more than they have. There has not been a single instance that we have called upon them to perform work in the interest of the organization that they have not responded with alacrity and they all seem to be imbued with a spirit of labor and a full realization of the deep responsibilities resting upon them. I do not say this in spirit of flattery, but merely speak the truth when I say that the Brotherhood of Locomotive Firemen today have in the Vice Grand Masters a corps of able officers that, with the assistance of the members, with whom they come in daily contact, will make a record for our Brotherhood that in all probability can not be surpassed, and to them I extend my most sincere thanks for the prompt and able manner in which they respond to any requests that I have made upon them, and I feel that if we continue to work together in the same spirit of harmony, no fears may be entertained for the future welfare of our organization.

Ordering Supplies.

In view of the fact that many of our Lodges order very small quantities of printing and supplies at frequent intervals during the month, thereby necessitating a considerable outlay for postage and stationery, both on the part of the subordinate lodges and the Grand Lodge,

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it is recommended that upon receipt of this circular each lodge prepare a complete list of the supplies likely to be needed during the year and send in an order for the same to the Grand Secretary and Treasurer, which will be promptly filled. Lodges will then have all the necessary printed forms, books and other supplies on hand; many petty annoyances and delays will thus be avoided; and much unnecessary expense be saved. In the interest of economy, both time and money, we hope each lodge will give the foregoing recommendation their earnest consideration and govern themselves accordingly.

Irregular Remittances.

Quite a number of lodges seem to misunderstand the law governing remittances to the Grand Lodge. Section 155 of the Constitution requires that all moneys due the Grand Lodge must be remitted by the Treasurer. Almost daily we are in receipt of small remittances from Secretaries and other officers for supplies, grand dues and for other purposes, which can not be receipted for, and which must either be returned or held until we receive the regular monthly returns from the Treasurer. This causes unnecessary expense and confusion that can be avoided by each lodge strictly complying with the law, and seeing to it that no money is sent to the Grand Lodge for any purpose whatever by any one except the Treasurer, and by him only when he makes his regular returns for an assessment, except in cases where he is called upon by the Grand Lodge to send money to make up shortages in his returns.

Special Inducements to Each Member and Lodge for Securing the Largest Number of New Members During the Year 1903.

Bro. F. N. Gear, a member of Forrest City Lodge, No. 10, Cleveland, Ohio, who is in the employ of the Webb C. Ball Watch Co., kindly offers as prizes for securing the largest number of new members during the year of 1903, two of the Webb C. Ball Standard B. of L. F. $50 watches, on the following conditions:

One to be given to the lodge initiating the largest number of new members during the above mentioned period, and one to the member securing the largest number of new candidates, provided that the number exceeds ten.

This is certainly a very generous offer on the part of Bro. Gear, and knowing the reputation of the Webb C. Ball Standard B. of L. F. watch, it is certainly a prize worth contesting for, and we trust our members will avail themselves of this opportunity of securing such a time-piece, and at the same time doing a good work for the organization in increasing the membership.

Who will be the successful ones?

Increasing the Amount of Beneficiary Certificates.

We are daily in receipt of numerous letters of inquiry as to how members may have the amount of their beneficiary certificates increased. In answer to all such inquiries, will say that any member not over 45 years of age desiring an increase in amount of his certificate, must forward to the Grand Lodge the certificate he now holds, and with it a medical certificate in the prescribed form, same as is used by new applicants when applying for membership. The law provides that all changes in amount of policies must take effect on the first day of a quarter. It is, therefore, necessary that the member desiring to increase his insurance should go before the Medical Examiner about ten days before the close of a quarter, undergo an examination, and immediately thereafter hand to the Secretary the Medical Examiner's certificate; also the policy now held by him. The Secretary will immediately forward them to the Grand Lodge, and if the application for increase is approved by the Grand Medical Examiner a certificate for the increased amount will be issued on the first day of the following quarter. No member over 45 years of age can have the amount of his beneficiary certificate increased.

The Brotherhood's Prosperity.

The Brotherhood is enjoying an era of unparalleled prosperity. The membership is rapidly increasing; the lodges, with a few exceptions, are in a healthy and prosperous condition, and a number of applications are on file for new lodges; peace and harmony prevail, and the outlook is cheeringly bright. Standing on the threshold of a new year, we most earnestly appeal to each lodge to put forth its best efforts to make the year 1903 the crowning one in the history of the Brotherhood. There are inviting fields before us, and with a proper appreciation of our opportunities, and all working together in harmony, each doing his part, the harvest will be an abundant one. We appeal to the membership to render all assistance in their power to the Vice Grand

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Masters in the field, who are animated by one single purpose—the good of the Order. We want the help of all, for our high ambition is to help all; co-operation, a pull together and the benefits and victory achieved will come to all. If every member will contribute his influence the triumphs accomplished will pale into insignificance the achievements of the past.

* * *

Sparks.

Grand Master Hannahan summoned all Vice Grand Masters to meet with him and the Grand Secretary and Treasurer and the Editor and Manager of the Magazine in Peoria on January 3, 1903, for the purpose of going over plans for the work of 1903. The outlook was never brighter for a successful year, and every one in attendance at this conference seemed enthused with their work for the Brotherhood. Annual meetings of this nature are valuable because of the opportunities offered for an interchange of opinion. Grand Master Hannahan invited a free discussion of all matters by all in attendance.

A member writes to learn if the Editor "can recommend" certain medicines or cures advertised in the Magazine. In reply the Editor will say that he can not be responsible for anything advertised. The best he can do is to refuse advertising space to any advertiser that is found unreliable. Doubtlessly advertisers of medicines can furnish testimonials upon request, and then correspondence can be taken up with these references. A medicine that proves a cure with some people brings no relief to others, so these references are not always satisfactory. The best thing a reader can do is to use his judgment in such things, and report to the Editor any evidence of fraud. If any advertiser fails to do everything he agrees to do, and the evidence of such failure is filed with the Editor, that advertiser will be debarred from the advertising pages of the Locomotive Firemen's Magazine.

A certain so-called "Antonius the Healer" is imposing upon his credulous patients by claiming to have effected wonderful cures of well-known personages. It is said that he is getting business by claiming that he once cured Grand Master Hannahan of paralysis. Bro. Hannahan states that his claims are absolutely false and that he never heard of "Antonius the Healer."

A member of Itaska Lodge of the B. of L. F. recently sent to President Roosevelt a watch charm of Lake Superior agate with the initials of the Order upon it in gold. The Duluth (Minn.) News-Tribune of January 25, 1903, in commenting upon it, states that the name of the sender was not given, and the President sent his photograph and acknowledged the present in the following letter to the lodge: "As an honorary member of the Order I send this photograph, because a member of Itasca Lodge has just sent me a very handsome watch charm cut out of Lake Superior agate, with the initials of the Brotherhood of Locomotive Firemen in gold upon it. He did not sign his name, and this is the only way in which I can thank him. I particularly prize the letter sent with the charm."

The Johns Hopkins University, Department of Political Economy, Baltimore, Md., is desirous of securing a file of the Locomotive Firemen's Magazine, more or less complete. Anyone having back numbers of the Locomotive Firemen's Magazine which they would be willing to dispose of are invited to correspond with Mr. George E. Barnett, The Johns Hopkins University, Baltimore, Md.

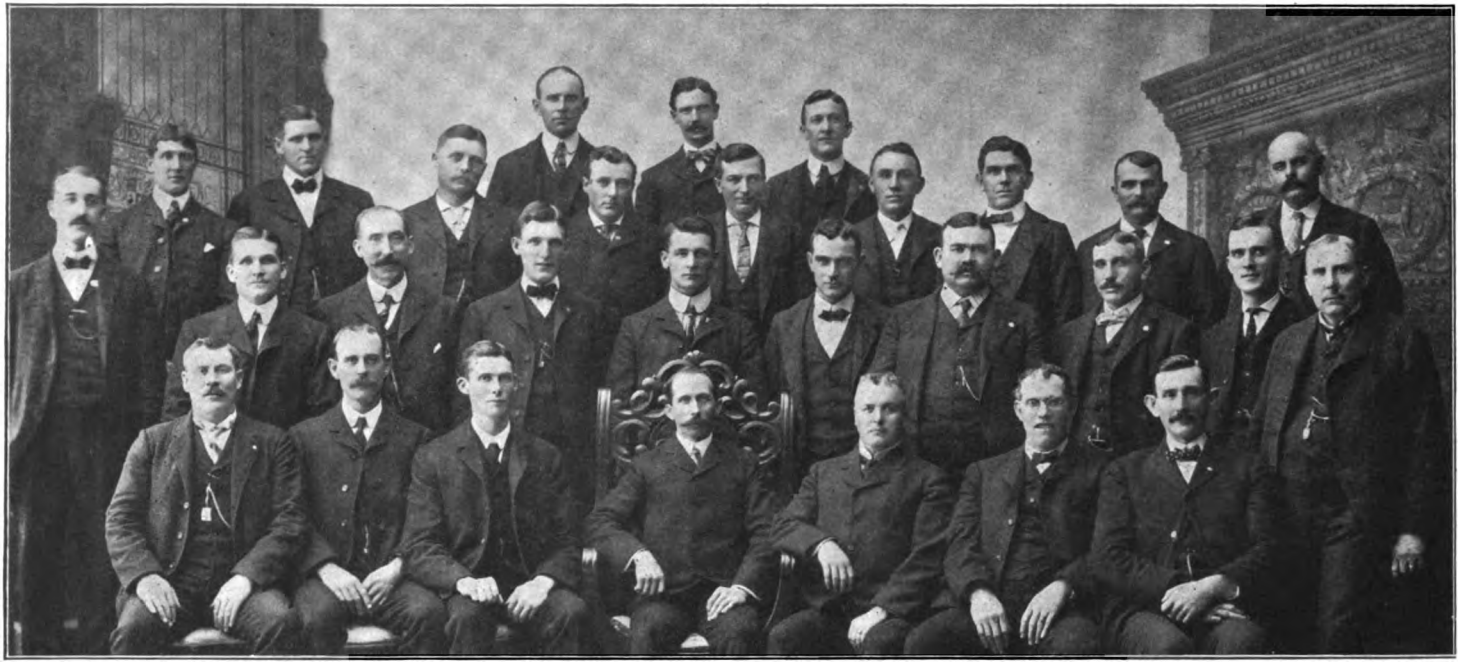
Through an unintentional error in the Magazine office, the name of Bro. T. F. Roberts was omitted in the publication of the letter from First Vice Grand Master C. A. Wilson in the February number. Bro. Roberts is a member of the Baltimore & Ohio Railroad Joint Protective Board and is deserving of equal credit with the other brothers whose names were mentioned.

Bro. W. L. Simmons of Lodge 381, B. of L. F., writes the Magazine that his lodge is in good shape, but that business is so heavy on the road that it is hard for the members to attend meetings.

The members of the Joint Protective Board of the C., M. & St. P. Ry. have adopted suitable resolutions on the death of Bro. Chas. E. Ward of Lodge 575, an esteemed member of that Board, and extend their heartfelt sympathy to his bereaved family.

Appropriate resolutions on the death of Delia, only daughter of Bro. Thomas Griffin of Lodge 440, have been adopted by the members of that Lodge, who extend their sympathy to Bro. Griffin and wife in their sad bereavement.

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JOINT PROTECTIVE BOARD, PENNSYLVANIA LINES EAST OF PITTSBURG

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Bro. E. W. Keever of Lodge 359, writes the Magazine that he has copies of nearly all the Magazines published from November, 1895, to the present time, which he will dispose of at a reasonable price to anyone who may want them. His address is 1405 F. street, Bakersfield, Cal.

Bro. John Bergschicker, Master of Lodge 527, Bellefontaine, Ohio, writes: "Our lodge is growing rapidly. We have over fifty members and eight applications on file. Everything is moving along all right. We had a visit from our Vice Grand Master on the 7th of January, which was much enjoyed by all present. We held a special meeting, but on account of the short notice we did not have a very large attendance, but the meeting was a grand success in every sense of the word."

According to the New Albany (Ind.) Press of January 13, 1903, the members of the B. of L. F. employed on the Louisville-St. Louis Division of the Southern Railroad have presented Mr. Frank Busching, a passenger engineer on that road, with a handsome silver service in recognition of services rendered them in securing increased wages.

Bro. J. M. McQuaid, of Herington, Kan., writes the Magazine that he is acting as Secretary and Treasurer of the C., R. I. & P. Joint Protective Board, vice G. F. Phillips, resigned.

Bro. J. A. Anderson of Lodge 86, at Laramie, Wyo., writes the Magazine that they now have a legislative board in that State, and although it did not accomplish anything at the session of the Legislature just past it expects to do a little business in the next two years.

A member of Lodge 235 writes the Magazine that at a recent examination the railway officials were so well pleased with his answers to the questions asked that they wanted to know where he got his information. He told them from the Locomotive Firemen's Magazine. He does not know what mark he received, but does know that they were very well pleased.

Anyone having a complete file of the copies of the Locomotive Firemen's Magazine for the year 1893, unbound and in good condition, can probably exchange the same for a bound volume of the Magazine for 1893. The reason for this exchange is that the bound volume in the office of the Magazine does not include the advertising pages, and it is desired that the official volume of the Magazine for each year, which is preserved in the office library, shall contain everything, even to the cover pages.

A Railroad Life for Me

By P. Evanton

The soldier loves a martial life,
The sailor loves the sea,
The merchant loves the city strife,
But a railroad life for me.

The mighty engine is our pride,
That swiftly speeds along,
As over the rails we smoothly glide,
To the drivers' dashing song.

Away we speed before the wind,
The landscape rushing by,
The city spires rise far behind,
Against the western sky.

The forest hears the whistle shriek,
And echoes back again,
Then on we rush o'er mountain bleak,
Through wind and driving rain

Dark rocks and woods are flying past,
In evening's gathering gloom,
As down grade we are speeding fast,
Where loud the waters boom.

The signal lights are shining bright,
All set for the main they gleam,
Then on we dash in the sable night,
While all our loved ones dream.

The headlight beams upon our way,
So faithful, bright and true,
And guides us till the dawning day
Comes robed in skies of blue.

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Forum

The B. L. E. and the B. L. F.

I desire to call attention to the following article which appears in the February number of the Engineer's Journal with the title "B. of L. E. vs. B. of L. F.," and which was written by a correspondent evidently friendly to the B. of L. F.:

"An important question arises from the fact that so many of our members remain members of the B. of L. F. I want to be correctly understood that I know that the B. of L. F. is a good and noble order, but I claim that when an engineer has run one year he is no longer a fireman and has no right to remain in the B. of L. F., and should withdraw and join the B. of L. E. at once.

"Let us examine the facts and call our witnesses. First, we will call Mr. B. of L. E. and B. of L. F., who is a good and faithful member of both orders, and ask the following questions:

" 'Brother, will you please state why you remain a member of the B. of L. F., while you are no longer a fireman?'

" 'I still belong because it is a good order and has the cheapest and best insurance in the world. I pay no grievance assessments; all I pay are annual dues and insurance assessments.'

" 'Do you expect protection or assistance in regard to overtime and wages from the B. of L. F.?'

" 'No, sir. I depend on the B. of L. E. and receive my pay according to the engineers' schedule. My grievances as an engineer are adjusted according to the engineers' schedule and laws.'

" 'How much insurance do you carry in the B. of L. E.?'

" 'The smallest policy that I can get.'

" 'How much do you carry in the B. of L. F.?'

" 'I carry the full limit.'

" 'Why do you carry only a small amount in the B. of L. E. and a large one in the B. of L. F.?'

" 'Because it is cheaper, and as I belong to both orders I receive more insurance for less money in the latter.'

" 'We will assume that you are a member of both orders. The engineers come to trouble, and have gone to the last resort and may have to strike. The firemen are not in it and have no grievance. Which order will you stay with in this case?'

" 'Whichever one is right.'

" 'We will assume that both are right?'

" '*Well, I don't know, now.*'

"I have asked the above questions to show what answers they would make. Now, Brothers, I again claim that when you become a locomotive engineer you no longer are a fireman; that you should join the engineers and drop the firemen. You are paid and handled by the engineers' schedule, for which the engineers have paid and worked for. If you remain in the B. of L. F. for its cheap insurance, you do not benefit the firemen's order, but you do assist their insurance; so many of you make it cheaper. Why don't you take the limit in the engineers'? If all of you would, our insurance would get as cheap as the B. of L. F.'s. When we lose a member, we can draw from no place except the firemen; and if you retain your insurance in the firemen's order, and only take out enough in the engineers' to hold your membership in that order, don't you think if you would carry more insurance in the engineers' you would place your help and money in a place where you could make us a cheaper insurance and create a larger insurance membership, thereby helping us to make our insurance cheap also?

"You are a dead member in the B. of L. F., because you are not benefited by their schedule. They pay good money for it. You are relieved from it. You say you have belonged to the firemen's a long time, and have paid in lots of money and don't want to lose it. Every month in these orders you get value received for what you pay. If you stop paying you quit getting protection or insurance. The insurance in both of these orders, as I understand it, is given to us at actual cost. If we can increase our membership in our insurance, we can make it cheaper. Now, Brother, if you don't stay in it and take out our insurance, how are we to increase our membership and cheapen it? You who remain in the firemen's are carrying your insurance in the firemen's, and getting your protection and bread and meat from the B. of L. E.

"The B. of L. F. is a good order for firemen. You are an engineer, and have no business to be hanging onto some other order for cheap insurance, and you alone are the cause of our insurance being higher. Buy your insurance at the same place you get your protection, wages and overtime. I consider you a deadhead in the firemen's order, and if I lose my position as an engineer and have to go firing again, I will withdraw from the B. of L. E. and join the B. of L. F. I would place my money and membership where I got my protection and bread. Put me on record right now, if I do go into the B. of L. F. again I will be a fireman, and all you deadhead engineers who are in the B. of L. F. for cheap insurance will get charges preferred against you for not being firemen. I do not wish to be understood as intending to run down any order, but I feel that you ought to place your insurance membership in the order that helps you most or the one that covers your present position."

The writer of the article quoted is a liberal man; far more so than the average, but he objects to a member of the

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B. of L. E. retaining his membership in the B. of L. F., because the member takes out the least insurance permissible in the B. of L. E. and the greatest amount that he can get in the B. of L. F. From this it seems that the only differences between the two labor organizations is competition between their insurance departments. But this is not the only contention.

"Patriotism" is presumably a noble characteristic. The man who will do and die for his country is immortalized in the hearts of his people. A question of national morality, right or justice is not debatable with a patriot, for what his King or President does is always right, and a patriot makes no distinction between his country and his country's ruler. As some men can not distinguish colors those who are intensely patriotic seem to have lost the sense that distinguish right from wrong in national matters. With the patriot everything that *his* country does is right, and everything that other nations do in opposition is wrong. The soldiers, who, at the behest of George III, left their bones beyond the sea and setting sun, were patriots brave and true. As patriots they never questioned the wisdom or justice of the cause for which they died. The colonist who gave his life for secession from his mother country, and whose love for the colonies was only exceeded in intensity by his hatred of the King, was an ideal patriot. A patriotic duty that devolved upon every patriotic son of the South was to uphold slavery. In all history never a city was put to the sword except by patriots. There was never a crime dictated by a King that was not glorified by patriots.

This "patriotic" instinct is the ferment that breeds discord between labor organizations, if we may apply the same term to the same mental characteristic wherever found. As the interests of nations sometimes conflict so does the jurisdiction of kindred labor union sometimes cause disputes, and in such rivalry we find few on either side whose "patriotism" will permit them to recognize wrong in their own organization or right in the claims of their opponents. Each *knows* that his organization is right in all it does, or ever has done, and he resents opposition from whatever source. These "patriotic" warfares between trade unions have been the subject of most deliberations at past conventions of the American Federation of Labor. If those members that have dictated the policy of the B. of L. E. had been less "patriotic" and more condescending an alliance with the B. of L. F. would have been formed years ago that would have prevented all friction between these two organizations.

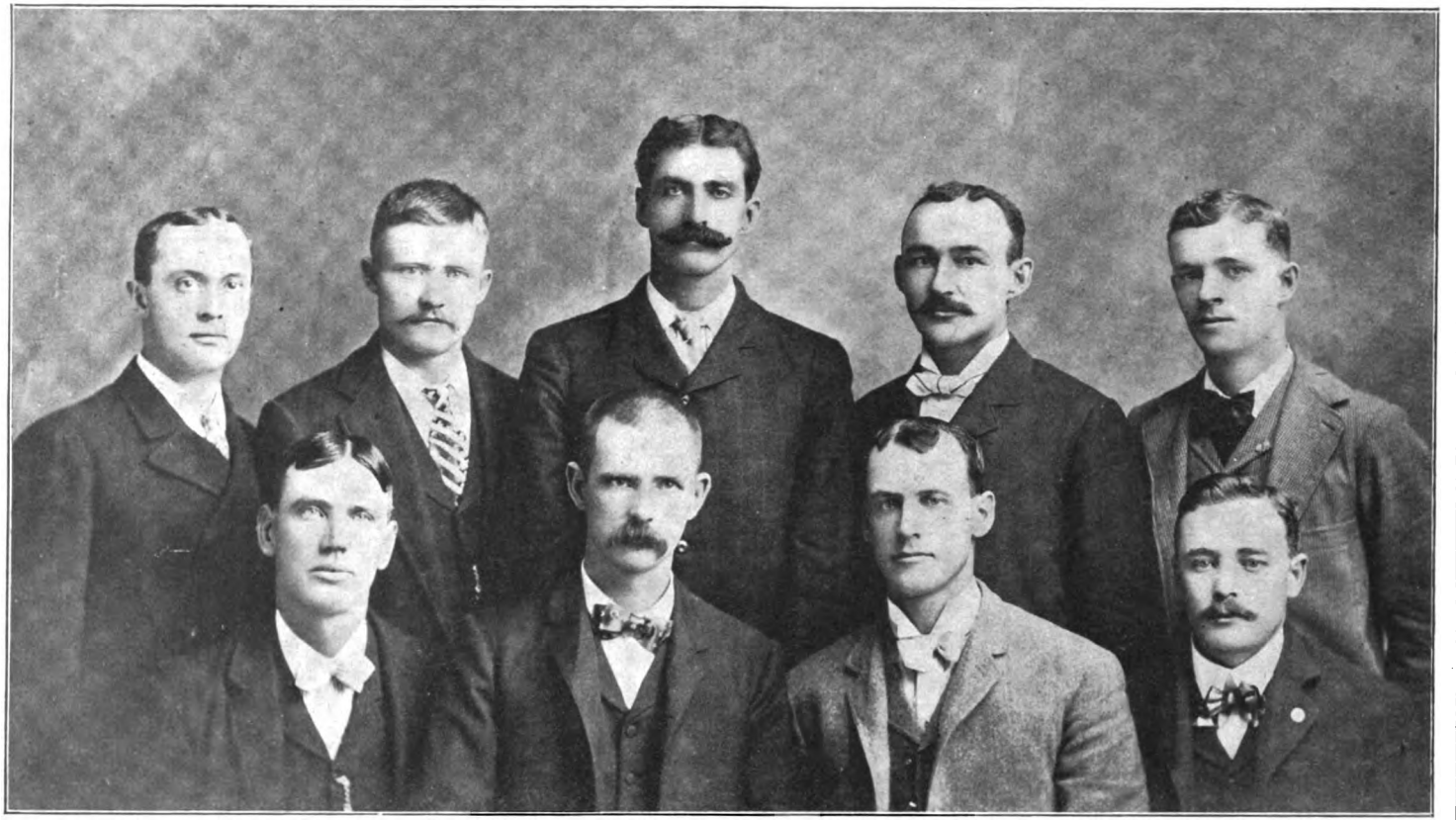
The B. of L. E. has been one of the most potent of all labor unions in the improvement of the industrial conditions that affect working people, and when members of that union boast of the benefits that have accrued to locomotive engineers through association therewith they have well-founded grounds for their pride. When members of the B. of L. E. protest that all locomotive engineers should affiliate with that organization they are voicing a sentiment expressed by all workingmen for their respective trade unions.

Shortly after the locomotive engineers instituted the B. of L. E. the locomotive firemen, profiting by their example, also organized a trade union. When we consider that the whole world competes with locomotive firemen in their work, and that the presumed "skill" of locomotive engineers largely protects them, it may be said that the B. of L. F. has done more for the craft it represents than the B. of L. E. has done for its members. Members of the B. of L. F. justly pride themselves upon the potency of their organization. With justice they demand that every locomotive fireman affiliate with the B. of L. F., and assist in forwarding the work that is beneficial to all locomotive firemen.

In all of the industrial field there are no two vocations which are nearer akin than the firing and the running of locomotives. If there ever were two trades that should have been represented by one union it is the firing and the running of locomotives. While but few locomotive firemen have filled positions of locomotive engineers, there are few who could not do so with credit to themselves and to their employers. Nearly all locomotive engineers have been locomotive firemen; in fact, *are* qualified firemen, unless because of a lack of physical ability. A majority of the locomotive firemen of today are far more capable of running engines than were a majority of the engineers a few years ago. It has not been so many years since locomotive engineers were "made" from firemen of one or two years' experience, if they exhibited especial talent, while locomotive firemen of today as a rule have had many years of experience, and are possessed of technical knowledge and training of which engineers of the old school knew nothing.

Taking all of these matters into consideration is it not strange the B. of L. E.

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JOINT PROTECTIVE BOARD, D. & R. G. SYSTEM

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and B. of L. F. have not long ago formed an alliance for mutual protection?

The fact that nearly all locomotive engineers when first assigned to locomotive running are members of the B. of L. F., and the fact that the B. of L. E. must look to these promoted men for material for its future membership, has brought about a clashing of interests that should and could have been avoided—if "patriotism" had not lead the B. of L. E. to assume a position of superiority and indifference toward the B. of L. F. at a time when both of these organizations should have been united for mutual support. Instead of enacting laws that discriminated against the B. of L. F. and laws that coerced engineers to withdraw therefrom, how much more politic, even if less "patriotic," would it have been for the B. of L. E. to have invited a conference and joint action with the B. of L. F. in providing for an agreeable transfer of membership; a transfer that would not encroach upon the liberties of the young engineer and at the same time bring to the moral and financial support of the B. of L. E. all locomotive engineers. It has been a great mistake to assume a position that ignores and discredits a sister organization and *forces* its members to withdraw. It would have been a master stroke of diplomacy to have "extended the hand of friendship across the cab" when the B. of L. E. was the larger instead of the smaller of the two organizations. It is not too late to adopt this policy now, but it would now come with much less grace. "Entangling alliances" may not be desirable in some features, yet a position of dreary isolation also has its disadvantages.

In the past the B. of L. E. has ignored the interests of switch engineers and other newly promoted men. The B. of L. E. in but few localities recognized switch engineers as worthy of membership, and it has debarred from its protective influence the thousands of newly promoted men who were not yet eligible for membership in that organization. Here, again, was a suicidal policy, for finding themselves ostracised by the B. of L. E., and without protection from that organization, these young runners and switch engineers turned to their old friend, the B. of L. F., and asked for the protection they could get no where else. When these engineers were compelled to ask assistance from the firemen's Brotherhood a precedent was established that has made the B. of L. F. practically an organization of both engineers and firemen. Whose fault was it?

Instead of recognizing the B. of L. F. as a union among unions, as an organization representative of an important class of railway labor, as an organization capable of doing business with the B. of L. E. and entering into agreements that would forever settle the question of jurisdiction, it has avowedly ignored the B. of L. F., and on two occasions has enacted secret legislation which had for its purpose the *forcing* of members of the B. of L. F. to abandon that organization. Has it been "patriotism" on the part of those who have shaped the policy of the B. of L. E. that has brought about all of these complications? If the delegates at past conventions of the B. of L. E. had sought an amicable agreement with the B. of L. F. covering the question of jurisdiction, instead of expending their time in legislating *against* the B. of L. F. they would have sown seed from which satisfaction instead of bewilderment would have been reaped.

There is yet another bone of contention on which the two enginemen's organizations have been gnawing for many years; that of the hiring of engineers. Both engineers and firemen who are out of work, if they have ability and are of good character, certainly are deserving of employment. Firemen who have served an apprenticeship and have the ability to run a locomotive certainly are deserving of a journeyman's position and wages. Those engineers who contend that firemen should not be promoted or those firemen who protest that engineers should not be hired may be "patriotic," but they are responsible for the fact that experienced engineers and firemen now find it almost impossible to secure employment at the trade they have learned. If the B. of L. E. and the B. of L. F. had gotten together twenty years ago and adjusted this matter in a manner equitable to both we would have "union" railroads today in the same manner that we have union printing offices, union cigar factories, etc., and members of both of these organizations could have secured employment if they possessed ability and were deserving of employment. Both organizations are partly responsible for the fact that experienced engineers and firemen can not find employment.

It is true that the B. of L. E. did send a committee to the Cincinnati Convention of the B. of L. F. in 1892, with a proposition, but at the same time tied the hands of that committee so that the B. of L. F. had to accept the edict of the B. of L. E. or reject it. There was no method of

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compromise; no spirit of mutual concession; no modification of the proposition was possible. It was accept what is offered or take nothing. The B. of L. E. was willing that "an equal number of firemen shall be promoted to the position of engineer as there are engineers hired, that is, as long as there are competent firemen to promote." When the B. of L. F. pointed out that if two firemen were promoted to one engineer hired that it would be more equitable, and would soon exhaust the supply of qualified engineers out of employment, the B. of L. E. committee said they had no power from their organization to change the proposition. When it was proposed by the B. of L. F. that the influence of the two organizations be used to secure employment for both experienced engineers and firemen the engineer's committee agreed that "experienced white men shall be employed as firemen in preference to inexperienced men," and that the B. of L. E. believed that "intelligent white men should man all engines and that efforts would be made to reach such a result." Considering the fact that about ten men are now promoted to one engineer hired is it not evident that the B. of L. E. made a mistake in declaring as an ultimatum that only one fireman should be promoted to each engineer hired?

Lest it be said: "Thou hypocrite, first cast out the beam out of thine own eye, and then shalt thou see clearly to cast out the mote out of thy brother's eye," I will confess that "patriotism" is not unknown in the B. of L. F. There are those who think it right for the B. of L. F. to demand that all locomotive firemen become members of the B. of L. F., and at the same time think it is wrong for the B. of L. E. to demand that all locomotive engineers become members of the B. of L. E. There are those who think that railway companies should employ Brotherhood firemen, but should not hire Brotherhood engineers. There are some who can see no wrong in the B. of L. F. and no good in the B. of L. E. But this class of members are in the minority, a minority so insignificant that it may be stated as a truism that the B. of L. F. has always been willing to do the fair thing by railway companies and by other labor organizations. The B. of L. F. has always been willing to meet the B. of L. E. half way in the adjustment of any question on which there may arise a difference of opinion. The Grand Master, the Grand Secretary, and many prominent members of the B. of L. F. plead the cause of the B. of L. E. at the Cincinnati Convention, and if the engineers' committee had been vested with discretionary powers by the B. of L. E.; if it had not become evident to the delegates at that convention that there was not the least spirit of concession in the B. of L. E., unemployed engineers would have been better off today.

I am of the opinion that the time is as opportune today as ten years ago for the B. of L. E. and the B. of L. F. to work for each other instead of against each other. If those who have dictated the policy of estrangement in the B. of L. E. will give way to those who believe that "you can catch more flies with molasses than with vinegar," there is yet a chance for the "Twin Brotherhoods" (as we used to call them during the "Q" strike), of working for each others' interest. The B. of L. F. has no objections to its promoted members joining the B. of L. E., but protests against the B. of L. E. enacting laws which expels their members for belonging to the B. of L. F. If the insurance department of the B. of L. E. is the only reason for this tyrannical edict then the B. of L. E. is sorely handicapped with its insurance features. It is a mistake to think that the retention of engineers, who take the highest insurance, is a benefit to the B. of L. F. Everyone that withdraws makes the B. of L. F. insurance cheaper. But the B. of L. F. does not permit the question of "cheap insurance" to affect its friendship for engineers, whether they be members of the B. of L. E. or B. of L. F., and let us hope that in the future the B. of L. E. will rescind its laws against the B. of L. F., and adopt as its "coat-of-arms" an olive branch instead of a hatchet.

JOHN SMITH.



The General Chairmen's Association.

There is nothing the matter with the General Chairmen's Association. It still lives and flourishes. Most of our chairmen have had their time fully occupied of late, for on most roads committees have been in session with the railroad officials and no doubt for that reason so little has been heard from the members of the Association.

The General Chairmen's Association is, properly speaking, merely a bureau of information for the benefit of the members and as set forth in part of the preamble to the constitution: "For the purpose of becoming better acquainted with the condi-

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tions existing on the different railways in the country, regarding schedules of wages, rules and regulations, and for the purpose of disseminating useful information to protective boards," and so on for several lines.

Joint Protective Boards when meeting with railroad officials in late years have found these gentlemen fully equipped with facts and figures for the contest, and oftentimes better prepared on the subjects brought up for settlement than the men presenting them. Instead of agreeing to some innocent-looking clause without realizing its full import they were prepared to go to the bottom of everything, and know its whys and wherefores. The result has been that the thought came to many chairmen of Joint Boards that there should be some method employed for furnishing required information to Joint Protective Boards, and the meeting in March, 1901, at Chicago, was the result of such thoughts being put to practical use. At that meeting it was decided to try and bring the scale of compensation and the rules and regulations governing firemen as nearly the same as possible in adjacent territory. It was recognized as unjust to a portion of our brothers that they should be working at a smaller compensation than their brothers on parallel lines, and the intention is to aid as far as possible in bringing such lines, by furnishing all possible information to these boards, to the higher standard.

The chairman of any Joint Board, the vice chairman, or any member of a Joint Protective Board presenting the proper credentials from his board and the payment of the membership fee of $5 annually, is eligible to membership. These meetings give each member a chance to learn of the different things that are coming up for consideration in different parts of the country, the best methods of presenting them, and bringing them to a favorable conclusion. It may be said that this is essentially the work of the Brotherhood, and such matters could be brought out at conventions. There is too much work already to be handled at conventions, and quite often some one else than the Protective Board members represent the lodges on a system at conventions.

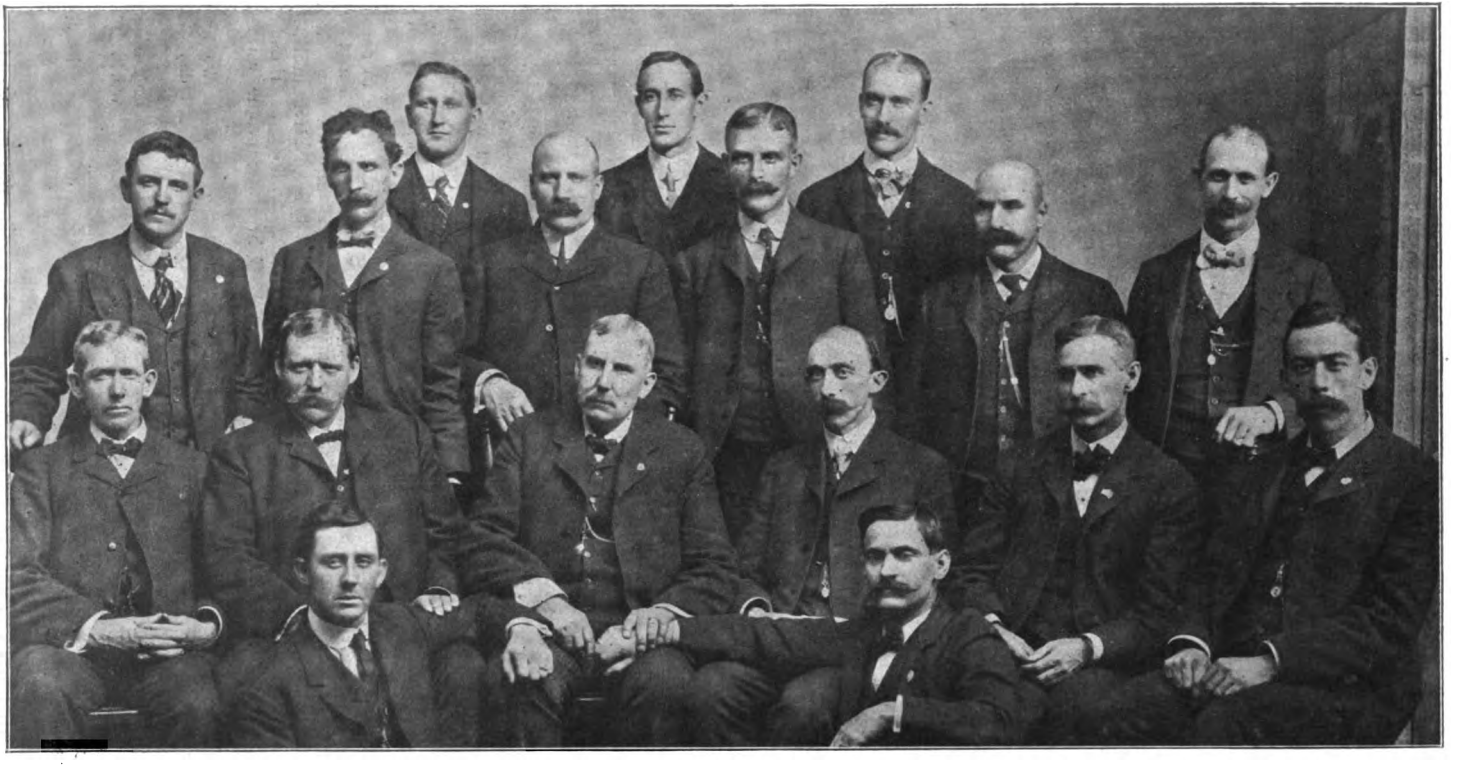
The grievances brought before the General Chairmen's Association are up before practical men and are discussed in a practical way. Much valuable information is thereby disseminated, and this is what the General Chairmen's Association was organized to accomplish.

W. L. FRENCH.

A Monument to Railway Men.

There is an old saying, "God helps those who help themselves," and recently the Brotherhood of Locomotive Firemen followed out the old adage by voting almost unanimously to build a home for homeless and disabled Brotherhood men. I believe that the B. of L. F., B. of R. T. and O. R. C. have undertaken a grand task, to provide for their members who are without a home, in case of disability and old age. What greater monument could we want erected to the memory of these orders than to be able to build a home for those who are our brothers and are homeless. The membership of the three Brotherhoods are large enough to maintain this home without any trouble at all, and the cost will hardly be felt by the individual members. One thing sure, we can not leave our old and disabled members to the charity of the cold, cold world; if we do some will find their way to the almshouse, and this should never happen. They will appreciate the difference between a place called home and an almshouse intended for charity. The home will be kept up by an assessment plan, as I understand it, and the amount needed will not be so large as to make it a burden on those who will be called upon to pay it. When the people in general see the interest we take in our own people they will be quick to give us credit for what we are trying to do and, instead of being opposed, as has been the case in some instances in days gone by, we will undoubtedly be helped in this good work. So many people have believed that we have organized to strike if we become dissatisfied with our existing conditions, that a move in this direction in caring for our members who are aged and infirm will be an argument in our favor as to why the orders should be maintained, and will prove to our opposers that they were mistaken as to our intentions. I am sure we are able to take care of this home, if it is built, and I hope it will meet all expectations. It is not charity working people want by any means; we have never asked something for nothing; it is work we want, and plenty of it, with a good day's pay attached. That is what working people are after, and I am sure that they deserve good pay for an honest day's work. They can and will build just such a monument as the three Brotherhoods have in view at the present time. I am sure that all true Brotherhood men will applaud this very worthy object and will do all they

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JOINT PROTECTIVE BOARD, ERIE SYSTEM

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can to build up these orders and never let them take a backward step. When we stop and reflect for a moment and compare the differences between the conditions of labor now and that of days gone by we can not help but feel proud of organized labor at the present time.

The coliseum of Rome was built by the sweat and blood of the toilers, as was the pyramids of Egypt and the great Chinese wall that crosses 1,800 miles of Chinese territory, and could the slaves only speak and tell us what they had to put up with, I am sure it would make the very stones weep. 'Tis true those things I have mentioned are monuments and were built by toil, but what good are they now, and who knows what they were built for in the first place. It is said that the Chinese wall was built to keep out invaders and enemies of the Chinese people, and that savage tribes were in the habit of coming down into the Chinese territory and destroying the Chinese inhabitants and plundering and pillaging.

The coliseum of Rome was built for a place of amusement, and many is the poor slave that met his death in the arena to please the wealthy of those days. Why people of wealth, education and influence of olden times saw fit to see men and women slaves is a mystery. Why one human being should be inhuman to another is also a mystery. Man came not on this earth by his own free will; neither does he leave it by his own free will, but he comes and goes just the same, and some that are here are so swelled by their own importance that there is hardly any living with them. Probably this was what was the matter with the people of olden times as much as anything.

The pyramids of Egypt are the greatest structures of the world, but why they were built it seems that no one knows. Some have said that the magnificent structures were erected to shelter people from storms and earthquakes, but like so many things of the dark ages no one of today is quite sure of any reason why they were built.

We are thankful that we are through with such conditions as I have mentioned, to a certain extent, and when working people build a monument now it will be one that will be of some use to the poor toilers, who have experienced the hard side of life and have no place to lay their heads should old age and infirmities find them without a shelter of their own. Let the world know that we are going to build a monument, one that will make many a poor fireman, brakeman and conductor happy, and one that will be a success.

The things that I have mentioned in this letter are monuments in one shape or another and represent the progress of mankind. In conclusion, I would say that "God helps those who help themselves."

CHAS. W. MAIER.

Aid for the "Home."

I want to call our members' attention to the fact that we are still doing business at the old stand at Highland Park, Ill., and we do not want our friends to forget that we need a little assistance to sustain the boys who are with us for some little time.

Everybody knows that living expenses are almost double what they were a year or so ago, and if it is so in our households it is so at the Home at Highland Park. Therefore this appeal for a little to help us out. We have been under heavy expense on account of some of our boys needing the doctor's care, and also one of our boys needing a nurse. So the brothers can see that it all takes money to help these boys out and keep them warm and well fed.

We are fortunate in having plenty of hard coal, as we put in our supply last July. Although we ordered fifty tons we only had delivered to us about forty-three tons, so on the coal question we are O. K., thanks to Mrs. Watson's foresight. She is always on the alert for the comfort of the boys at the Home.

The Home is prospering and the boys are contented. Of course, this wintry weather keeps the boys in the house and that makes it bad for them, but they bear up well. Bro. Bellair is still manufacturing engines, and by the time the Buffalo convention hoves in sight he will have a carload to show the boys.

We are called upon to chronicle the death of one of the boys, Bro. William Winston, a member of the O. R. C., at Chattanooga, Tenn. He came to the Home right after our convention and stayed with us until he answered the last call, which was on Monday, January 12, 1903, at about 2 p. m. His remains were sent to his former home for burial. And so they come and go. May he receive his reward in heaven, the haven of rest for us all.

In conclusion allow me to remind the brothers, and sisters as well, to contribute towards maintaining the Home until such

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time as the Orders will take charge of same. Then I hope we will not have to make an appeal for funds to keep the Home running, but we will have funds and a fine Home and room for all who may apply, and who need to be cared for.

GEO. GODING,
V. P. of the Home.

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Union Meeting of Railroad Organizations.

A union meeting of all railroad organizations will be held in Montgomery and Pensacola beginning on June 2d and continuing five or six days. Now we know our railroad brothers and sisters would like to know how this meeting will be held in Alabama and Florida, so we will explain.

A grand officer in the South, a member of the G. I. A. to the B. of L. E., with the assistance of a few worthy brothers and sisters, thought a union meeting in the South would be very beneficial to the railroad people who expect to spend their lives together in a social way. This grand officer began to work earnestly and in a short while accomplished much by getting all interested. The writer was present at the first meeting held in Montgomery and, becoming interested, thought how nice it would be for Pensacola to fall into line and help in this grand undertaking.

We, the Pensacola railroad organizations, will be present in Montgomery to share the benefits provided for this noble cause. On our return home we will bring this large delegation to our beautiful city on the Gulf, where we will entertain them most royally. Without viewing our forts, our navy yard and our beautiful harbor, enjoying an old time fish chowder and a dip in the surf, your trip South would not be complete. So, brothers and sisters, through the columns of the Locomotive Firemen's Magazine we extend a cordial invitation to all railroad organizations to be present at the Montgomery-Pensacola Union Meeting to be held the first week in June, 1903.

MRS. GEORGE HOFFMAN,
Sec. Pensacola Council.
MR. E. M. WILSON,
Chairman.

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Eight Hours to Constitute a Day's Work.

Eight hours should constitute a day's work on all railroads. It is now being commented upon by the press throughout the length and breadth of the land. Relative to the great disasters which have so recently occurred on the different railroads of the country, when the whole thing is sifted down it has been found attributable to the negligence of overworked employes.

Were it not for the schedules or contracts under which we are working today there would be no telling what wrecks might happen. Just stop and think of the man working for thirty to forty-eight hours without rest, the man who enters the employment of a railroad company and fires one of the battleships which they all have today and follows it up for a few years. When it comes time for him to run an engine his life is gone. He is no more the young man full of life and vigor. He has become stiff in his joints. His health is gone, and his nervous system is a total wreck. Why? Because he has had to work from thirty to forty-eight hours without rest, with cold food to eat or none at all. He has handled anywhere from fifteen to eighteen tons of real estate which the company has bought for coal. He has been burning up with heat and sweat, and his temperature has within fifteen seconds been down to twenty degrees below zero. He has reached his terminal, and has been stretched out for about five hours, when the caller comes and says: "Get up, Jim; 9:30 p. m." He goes down and gets on his engine, goes down in the yard and the yardmaster gives the crew about seventy-five or ninety coal cars, or if not coal cars it is something their equal. Off they go for another thirty-six to forty-eight-hour drag over the pike. When this man is promoted to be an engineer do you wonder why he has lost his nerve? He has no nerve; he has no life, for it has been spent in keeping the middle clock on the boiler head wound up.

If the stockholders of these mighty corporations would only think of the poor men who earn the large returns for them and would provide means for their comfort while in their employ, it would be unnecessary for us to bother their officials with our complaints. While we must think and act we should, therefore, make one determined effort to bring about shorter working hours and better conditions for men who have to put their life blood in the firebox of a locomotive.

Why does one man tax his fellow man with such heavy work? Why does one man take the very life and strength of another man to make himself rich? Of course, if you don't like your position you

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can quit. That is all true, but a mighty poor argument. Since railroads exist, there must be men to operate them, and there should be laws to govern the operation of them. While there are would-be laws for the owners thereof, there are none for the men who operate them, or who have to work under the conditions named.

I should like to hear from some of our brothers upon this question. Let us take the matter up and see if there is not a way to benefit the now existing conditions of the fire boy. NORMAN N. HICKS.

In the Field

Second Vice Grand Master.

Since my last letter my work has been through the Southern States and everywhere I have been I find the lodges in good condition, and it affords me great pleasure to say that everywhere I went the brothers extended to me a most cordial welcome, as there was nothing within the limit of Southern hospitality that was too good for me, and for this kind treatment I extend to them all my heartfelt sympathy and best wishes. And as for the Ladies' Societies that I had the honor and pleasure to meet on several occasions, where they had prepared banquets for the brothers and myself, to them I am touched by the warm and cordial welcome and loyal deference everywhere accorded to me as an officer of the Brotherhood, and for every courtesy shown me and for the many kindnesses which I have received I am deeply grateful, and will ever hold in fond remembrance the pleasures I have enjoyed in the many gatherings on my first trip through the South.

January 10th found me in Louisville, Ky., where I held a joint meeting with Lodges 103, 502 and 578. Bro. Pat Filburn of Lodge 103 deserves great credit for his faithful work, and the same can be said of Bros. Slaby, Master of Lodge 502, and Pickering of Lodge 578.

January 12th I reached Paducah, Ky., where I held a very interesting joint meeting with Lodge 238 and 165. Those lodges are in very good condition. Bros. H. P. Barksdale and Ed. Deloach of Lodge 165 are true blue Brotherhood men. Bro. Thomas of 238 is entitled to his share of the credit for his work in behalf of his lodge.

January 14th found me in Memphis, Tenn., where I held a joint meeting with Lodges 55, 206 and 364. Those lodges are in very good condition. Bro. M. J. Glancy of Lodge 364 is one of the most ardent and enthusiastic workers in this section of the country. While here I had the pleasure of meeting one of our old time and faithful brothers, and while he has been out of the railroad service for some time, he is just as enthusiastic as in days of yore, Bro. M. Shanley, Secretary of Lodge 55. Bro. Lonergan of Lodge 206 is a credit to the organization and is the popular Master of that lodge.

On my arrival at Memphis I came in contact with and learned the true conditions that the Brotherhood of Locomotive Firemen are confronted with in the South, and that is the negro firemen. The boys in the North and West hear a great deal about the colored firemen in the South, but you can not imagine the true conditions as they exist until you have had personal observation.

January 15th I arrived at Jackson, Tenn., where I held a very interesting meeting with Friendly Hand Lodge 201. I was, indeed, very favorably impressed by the make-up and calibre of the members of this lodge. The members of the lodge are certainly a great credit to the Brotherhood. Bro. Geo. Vanderbrook, the popular Master, deserves great credit for his aid and encouragement to the members and the members appreciate his good work. I extend to him my heartfelt thanks for his kind hospitality while in his city. Bro. Hilman, Secretary, is doing his share of the good work and looking ont for the interests of the members. Bros. Teague, Wilde and Foster are very enthusiastic workers. My stay in Jackson was a very pleasant one, and while there I had the pleasure of meeting a great number of the representative business people, who treated me with all the kindness and consideration possible.

I also had the pleasure of forming the acquaintance of Mr. Geo. S. McKee, Supt. M. P. & E. of the Mobile & Ohio Railroad, and Mr. A. B. Minton, M. M., and I do not want any more evidence than what I acquired at that meeting to convince me that the best of feeling exists between the officers of the mechanical department and the locomotive firemen on the M. & O. R. R.

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January 17th found me in Water Valley, Miss., where I held two very interesting meetings with Water Lilly Lodge 402. On my arrival I was met at the station by a committee who escorted me to the hotel, after which we went to the hall where, to my great surprise, the ladies of Lilly of the Valley Lodge 157, Ladies' Society, had prepared and served an elaborate banquet. The sisters of this lodge are entitled to great credit for their aid and encouragement to Water Lilly Lodge 402.

This lodge has at present an excellent corps of officers and they are attending strictly to business. The Master, Bro. Hirsch, is doing all he can to make his lodge one of the best in this section of the country. Secretary Hartwell, while new at the business, is handling the office with credit to himself and honor to the lodge. Bro. Gafford, Collector, is seeing to it that the members pay their dues promptly and that there will not be a repetition of the past. Bro. Kennedy is looking out for the finances. The officers are ably assisted by Bros. Brown, Wood and Flake. I desire to thank Bro. Brown and his family for their kind hospitality while at Water Valley. I trust that it will not be long before I can return and make another visit.

On January 19th I arrived at McComb City, Miss., and held a very enthusiastic meeting with Ensign Lodge 411. At this meeting I had the pleasure of initiating two candidates, which made the occasion more interesting. Master Bro. Beam is doing excellent work in this vicinity and is ably assisted by Bros. Ricks, Kelly and Guess

On January 20th I reached New Orleans, but was not successful in getting a meeting with Crescent City Lodge 399.

January 22d found me in Algiers, La., which is directly opposite New Orleans, across the Mississippi River, where I held a very good meeting with Lodge 267. This lodge represents the firemen employed on the Southern Pacific Railroad, and their engines are nearly all oil-burners, consequently the firemen have a very easy position so far as their work is concerned. This lodge is composed of a very intelligent lot of boys and I predict a very bright future for them. Bro. Whelan, who has been recently made Secretary, and Bro. Dickson, Collector, are now carefully guarding the interests of all the members. Bro. A. G. LeBlanc is a very ardent worker. I desire to express my appreciation to Bros. Whelan and LeBlanc for their kind treatment, also for escorting me around the city of New Orleans and showing me the several places of interest, which I appreciate very much. I hope that some time I will be in a position to reciprocate.

In the evening of January 22d, accompanied by a large delegation from Endeavor Lodge 267, we took a car and went to McDonoghville, La., which is about one mile from Algiers, and had a very interesting and profitable meeting with Integrity Lodge 159. On our arrival there we were escorted to the hall where the ladies of Liberty Lodge 95, Ladies' Society, had prepared an elaborate banquet. The ladies of the Society turned out in large numbers and gave the boys a grand time. The sisters of this lodge deserve great credit for the good work which they are doing in this locality. I want to say in connection with this that everywhere I go where there is a lodge of the Ladies' Society located, that in every instance I find the firemen's lodge in good condition. Where you find such evidence as this it is conclusive proof that the Ladies' Society is doing good work.

Bro. Walter, Master, has the confidence of all the members and they are giving him all the aid possible. Bro. Cox, who is one of the charter members, is just as active and enthusiastic as in days of yore. This lodge represents the firemen employed on the Texas Pacific Railroad. They have an excellent schedule and are treated very kindly by their management.

On January 25th I was in Gulf Port, Miss., and had a meeting with Beauvoir Lodge 572. The members of this lodge are employed on the Gulf & Ship Island Railroad and run between Gulf Port and Jackson, Miss., 160 miles. On the line of this road there are over one hundred saw-mills. This road extends through the heart of the hard pine forests. This lodge is getting along fairly well and I expect to hear good reports from them in future. They have recently elected Bro. King as Collector and Bro. Edwards as Treasurer. I trust that the members will be more prompt in the payment of their dues in future than in the past.

January 27th I went to Memphis, Tenn., and had Bro. W. Kriedler examined for total disability, as ordered by the last convention.

January 28th found me in Vicksburg, Miss., where I held a meeting with Hill City Lodge 460. I find this lodge in very good condition. Bro. Shaw, Secretary, is doing all he can to keep this lodge up to the highest standard.

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On the morning of January 29th, during the few hours I had left before the hour of my departure, I was driven around the city accompanied by Bros. Fogarty, Conn, and one other old time member of the Brotherhood, T. J. Scranton, showing me the several places of interest, including the National Cemetery, which was very interesting to me. Bidding them farewell in the afternoon, I took train for Ruston, La., where I held a meeting with Pine Hill Lodge 618. This lodge is in its infancy, as it was not organized until last October. They are, however, getting along very nicely and I hope to hear good reports from them in the future.

January 30th found me in Shreveport, La., where I expected to hold a special meeting with Royal Lodge 522, but on account of the Master being out of town my letter was not received, consequently there was no arrangements made for a meeting and as I had an appointment at Meridian, Miss., I had to leave Saturday morning. I will, however, try and arrange to return to Shreveport before I return to the North.

February 2d found me in Meridian, Miss., where I held a meeting with Faith Lodge 200. This lodge is in fairly good condition and great credit is due Bro. B. J. Mitchell for his good work in the past.

The remainder of this month I expect to work in the States of Alabama, Tennessee and Kentucky. In my next letter I will advise you what success I have.

TIMOTHY SHEA.

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Third Vice Grand Master.

The wheel of time keeps revolving and here we are at the threshold of spring. Seed time and harvest will soon be here, and we hope and pray that this will be a bountiful season for all. Much depends on the success of the tiller of the soil. While he has plenty there need be no fear, for there is much to do in getting the products of the farm to market. I am firm in my belief that the time will come in this country when such a thing as a famine will be unknown. The storing of water in reservoirs and artificial lakes will be used for irrigating purposes. There is little use of any one being alarmed about wanting; should one portion of the country fail in raising the necessaries of life the other portion will make up for it. Railroad men more than any other class watch the growing crops, because they know a large harvest means plenty of work for them, as the farm products must go to market. I can not remember when I have seen business as rushing as it is at the present time on all of the railroads, both east and west of the Mississippi River, where it has been my privilege to travel of late. Just now it is hard to get any one out to the meetings, our members are so busy. I do not expect them to neglect their duties to come to the lodge room to hold meetings, but I do expect them to go when they have plenty of rest and time to do so. Recently when I was in the city of Chicago, I found business good on the Chicago Northwest Railroad and the enginemen constantly on the go all the time. The meeting of Lodge 275 was not as well attended as it would have been if business had not been so heavy. We had a nice time, however, and I appreciated it very much. I will come again whenever I have the opportunity.

I put in several days in Ashley, Ind., and hope that my visit livened things up a little. Lodge work will not prosper unless members take an interest in the work. It may be true that lodge work is hard and often discouraging, but this should not be the cause of letting it cease for one moment.

I also put in several days in Decatur, Ill., working among the Wabash firemen at that place, and I hope that in time Lodge 49 will be a better lodge. This lodge is one of the unfortunate ones that was in the trouble of 1894, and has not fully recovered from the effects of that disastrous strike. It only goes to show that it is an easy matter to destroy a good lodge, and that it takes a long time to build it up again. Considerable of my time has been taken up of late meeting with Joint Protective Boards and I find the boards as a rule in good working order. I appreciate the able manner in which our committees handle the business that comes before them.

I find our lodges along the line of the Southern Pacific in good condition and it is a pleasure to meet with them. I hope to be able to write a more lengthy letter in the future relative to the work in the field, and hope that I can give some useful information relative to the different classes of engines on the roads. As there has been a revolution in the locomotives, so there has been a revolution in the kinds of fuel to make steam with. At first they had the wood burner engine, then came the coal burner, and now they

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have the oil burner. While the former kind of fuel is fast going out of use, the latter is coming in, and it is only a matter of time until many railroad companies will have their engines equipped with oil burning devices and oil will be the fuel used. Like everything else, oil as fuel has its good and bad points, but the time will come when the oil burner fireman will make a success of his work and his services will be indispensable and his knowledge will bring him a good day's wage for his work. I will have more to say upon this question in April issue.

CHAS. W. MAIER.

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Fourth Vice Grand Master.

No doubt the readers of the Magazine would like to know how the Fourth Vice Grand Master is succeeding in his new duties, and in what part of the district he is engaged.

I left Stratford January 1st to attend a meeting of all grand officers held in Peoria on January 3d, this meeting being called by Grand Master Hannahan for the purpose of instructing us in our several duties, arranging our districts, and a consideration of how our work could be best accomplished in the interest of the organization. The district allotted to your humble servant takes in Maine, New Hampshire, Vermont, Rhode Island, Oregon, Washington Territory, Idaho and Canada, although it is understood that wherever duty calls us we must respond.

Leaving Peoria I went to Battle Creek and had a meeting with Lodge 84. Although the notice was very short, yet we had a good meeting, initiating four candidates into the Order. From there I went to Jackson, where I held a splendid meeting with Lodge 240. My next point was Durand, to meet with Lodge 420, but on account of the train being over two hours late I missed connection and, therefore, was unable to keep that appointment. From there I went to Detroit, where I held meetings with Lodges 158 and 532, as well as representing our Grand Master at the union hall. I also had the privilege of being present with the Michigan Central and Pierre Marquette Joint Boards which were then in session. From there I went to Windsor to meet with Lodge 421, but could not get a quorum. From there I went to Pt. Huron, Mich., to visit Lodge 586, but found all members on duty and was unable to hold a meeting there. I then visited Lodge 221, where I held two good meetings and initiated four candidates.

When in St. Thomas I held a union meeting with all the organizations, also a good lodge meeting. I intended to have met with Lodge 117 but was unable to arrange it, as members were on the road. I had dates arranged with Lodges 471, 487 and 38, but on account of heavy business on the road I was unable to hold lodge meetings at those points, although I met several of our brothers on duty or at their homes. I met with Lodge 151 and had a small meeting which may lead to good results. I then went to Lindsay and held two meetings with Lodge 136, at which were initiated five new members. From there I went to Toronto to carry out some work for our organization.

In going among our brothers I found a general complaint that they could not secure proper rest on account of so much business on the roads, and could not attend meetings for the same cause. I also found that every lodge had from two to eight applications for membership, to be acted upon as soon as the opportunity offers. The same can be said of the Boards of Trustees. They are unable, in some lodges, to meet with the Treasurer and carry out Section 157 of the Constitution, the instructions to the Vice Grand Masters being to examine the lodge books and report date of examination by the Trustees. I trust that every lodge officer and member will endeavor to have this done, and greatly assist us in our work. So far as I have been I found all our members very busy, and prosperity abounding on every side, with a promise of increased membership.

Lodge 84 is O. K., with Bro. Bhymer to look after its interests. If you wish to see lodge work well done go to Lodge 240, with Bro. Stoddard in the chair and Bro. Baily as Warden. If some of our brothers had to contend with the same conditions as do the members of Lodge 532, I am afraid they would be looking for new fields of labor. Lodge 586 is expecting to have a field day on March 19th, to which our members will be made welcome, and where they may spend a profitable evening.

Bro. J. Gray, the old war horse of Lodge 221, still continues to do business at the old stand, and any assistance or advice asked of him is cheerfully given. It is a true Brotherhood man who will get off his engine to arrange for a special meeting as did Bro. Hay of Lodge 117.

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What about Bro. Perkins of Lodge 151? Although not in active service, yet he left his work and traveled some distance to assist in having a special meeting, and taking over the duties of Master for the remainder of the term. Surely that must be a work of love for the Order. When Bro. Rhynd of 487 is out of town the main stay is absent.

EUGENE A. BALL.

Correspondence

LODGE 98—(*Chas. C. Biehler, Ogden, Utah.*) Perseverance Lodge 98, B. of L. F., and Pearl of the Rockies Lodge 173, L. S. to the B. of L. F., recently gave a grand ball at Conley's Hall, which was one of the most enjoyable events of the season. Among the decorations was a minature locomotive which occupied a prominent place on the music stand. Music was furnished by Ford's Orchestra, and about two hundred and fifty couple were present. It is said to have been the largest attended affair of the season. Light refreshments were served, and colored waiters in evening dress saw that the guests were provided for. The sisters certainly did good work and should have their full share of honor. Much credit is due Bro. L. D. Smyth, as he had the greater part of the arrangements to attend to, and the result shows what he and the several committees accomplished. The object of the ball was to raise money for the purpose of furnishing our new hall, No. 362 Twenty-fourth street, where we will hold our meetings hereafter.

LODGE 489—(*Harry Moore, Pittsburg, Kan.*) We have the usual up-to-date hardships to contend with here on the K. C. S. We have "battleship scrap heap compounds," and mud to burn, instead of coal, with fifty "warehouses" up the hills, which are so steep they lean back a little. But we tallow pots can forget our troubles when given the opportunity.

It had been some time since Lodge 489 had met in joint meeting with the ladies of Connecting Link Lodge 141, L. S., and there was a general feeling that things were not just as they should be, so at the last regular meeting of Lodge 489 the subject of union meetings was brought up and discussed at length, and it was unanimously agreed to hold quarterly joint meetings with the Sisters. As a consequence, an invitation was given and accepted for a meeting on the evening of January 12, 1903. It is needless to say that the event will long be remembered by both Brothers and Sisters. I am proud to say our Ladies' Society is famous for its hospitality and ability to entertain, and this one evening goes to show what a help and inspiration it is to have our wives, mothers and sweethearts interested in all that concerns us, and always planning pleasant surprises, which this time took the form of an elegant banquet, furnished and prepared by the Sisters, who made use of the occasion as a sort of farewell to their worthy President, Sister Alfa Anderson, who leaves shortly to join her husband at Los Angeles, Cal., their future home. All business was suspended, and at 9:30 o'clock the doors to the banquet room were thrown open. Each Brother, escorting a Sister, passed once around the hall and into the banquet room to the music of the orchestra. Sister Anderson was given the seat of honor at the center of the board, and after all were seated Sister Walsh, in behalf of the Sisters, presented Sister Anderson with a handsome leather-bound toilet case with silver-mounted fittings. Sister Anderson arose, and in a few well chosen words thanked all for their loving remembrance, and for the help and support each Sister had given her during the time she had been their President. Then came the supper, and a more sumptuous and delicious repast the boys of Lodge 489 never sat down to. Bro. D. H. Diller was our toastmaster, and the toast he proposed proved to the Sisters that their efforts to help and encourage the boys were recognized and highly appreciated.

Bros. Lee Guinn and Whit Reed are "strictly in it" when it comes to eating, and the pie contest was decided in favor of Bro. Guinn, who has an appetite second only to one of our compounds, and it goes without saying that he is always a favorite at the "beanery." After supper all returned to the lodge room and various games were played, among them being the "Presbyterian dance." Some of the Sisters gave vocal solos, and as soon as the banquet room was cleared all who cared to, tripped the light fantastic till the wee sma' hours. Special thanks are due Sisters Anderson, Nevens, Sheely, Wilson, Cline, Moore, Shannon, Jefferson,

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Diller and Allen for preparing and serving the banquet.

This was the first joint meeting the writer had ever attended, and to say I was greatly pleased and highly entertained is putting it mildly, and already I find myself wishing for the quarter to pass, that we may again have the pleasure of meeting with the ladies. I am one to take off my hat to them, and feel that union meetings are the kind to have.

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FROM LODGE 59—(*Silas Clark, Jr., Pueblo, Col.*) I have just returned from the funeral of Bro. Geo. L. Harmon, who died a few days ago, and whose remains were shipped to Mt. Vernon, Iowa, for interment. Bro. Harmon was a very active member, and was always ready to do all he could for the B. of L. F. and its members. In his death we have suffered a great loss. Our lodge has about 180 members and we had 40 members in line at the funeral, and as fine a lot of men as you will see anywhere. With our regalia we present as good an appearance as any lodge in the country.

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LODGE 302—(*E. M. Gross, Connellsville, Pa.*) I wish to inform the brothers that we are still doing business at the old stand. We are taking in new members at each meeting and on the whole are enjoying prosperity. But it is with a sad heart that I chronicle the death of Bro. W. M. Danford, the local treasurer of this lodge. About December 16th, Bro. Danford took to his bed with an attack of typhoid fever and on December 30th, with his loving wife in one arm and his five-year-old daughter in the other, singing God's praises, he passed away to join the Great Lodge above where parting is unknown. Bro. Danford was chairman of the local protective board last year, and was our representative at Baltimore in securing our present rate of wages and agreement with the B. & O. R. R. Co. He was recently promoted to the right side of the cab, and had been running about five months. He was a man who never shirked a duty, no matter how unpleasant it might be, and always bore himself with a manly dignity. May a divine providence shield and protect his wife and child, and lead them finally to his side where parting is unknown. Our charter was yet draped in memory of Bro. M. S. Nicholson, who was killed at Meyersdale in a rear-end collision, and now we must continue to keep it in mourning. Truly, Youghiogheny Lodge has suffered severely in the death of these, our brothers, but we hope that their death may be a means of calling our attention to our duty, so that when we are called we may meet our brothers in Heaven.

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FROM LODGE 328—(*Member, P, S. & N. R. R.*) It is with deepest regret that I announce through the columns of the Magazine, the death of our esteemed brother, John A. Pistner, which occurred on the night of December 16, 1902. Bro. Pistner was promoted about two years ago, on the P. S. & N. R. R., and was gaining ability as an engineer. On the night of the accident the unfortunate was ascending a two per cent. grade at Weedville. The rear car and caboose became detached from the train. Bro. Pistner went back to ascertain the cause of the delay and, finding the drawhead broken, rendered assistance to Bro. John Sullivan, of the B. of R. T., in repairing same. Bro. Sullivan went to the caboose after the required material, and upon returning, to his astonishment, found that during his absence the air brakes had leaked off and the train dropped back, crushing Bro. Pistner between the cars. The rear portion of the train dropped back sufficiently to release the unfortunate brother from between the cars. His last words were a request to Bro. Sullivan to get the physician. Dr. Hays rendered his utmost assistance, but with no avail. Death came in twenty-five minutes to relieve the sufferer of all his pain. The community was greatly shocked upon receiving the news of his death. A great gloom has been cast upon his home by the loss of a beloved son and brother. The brothers of Lodge 338 also feel that they have lost one of their most worthy members. The funeral was under the auspices of the B. of L. F. The pallbearers were as follows: Bros. Albert Simmons, Lamarance Mullaney, Edward McQueen, Frank Huffman, Peter Knight and J. Clark Mons. The floral offerings were of the most beautiful designs and were in abundance. The lodge sent the emblem of the Order, as near as it could be made in flowers, and a cross was sent by our General Master Mechanic, Mr. R. A. Billingham. Our First Vice-President, Mr. D. F. Marooney, also paid his last respects by sending a beautiful cross.

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LODGE 344—(*Member, Trinidad, Col.*) Once more the grim reaper, death, has come among us and at one blow, laid low

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four of our beloved brothers. On Christmas Eve, when all were looking forward to the morrow with joyous hearts, with no thought of the terrible calamity that was to cast a gloom over the whole city, one of the most terrible accidents in the history of our road happened almost within sight of our homes.

Bro. Elmer Pearce in charge of engine 478 with Bro. Wm. Fox as fireman, left Trinidad on an extra for Pueblo at 5.30 p. m., and twenty minutes later collided with No. 28, engine 474 in charge of Bro, John Goldtrap and Bro. Michael Deveraux as fireman, and in an instant seven souls had passed to the great beyond whence none ever return. Bros. Goldtrap, Deveraux and Fox, the two head brakemen, a car inspector, and a car tracer were all instantly killed, and Bro. Pearce was so badly scalded that he died a few hours later. The car inspector and the car tracer, Mr. Phil Landis, were riding on engine 474 and were coming to Trinidad for Christmas. No. 28 was a local freight with a heavy train of coal and was due here at 11 a. m. They knew nothing of the extra being on the road until they rounded a curve a few yards ahead of them when it was too late, and they crashed together with such frightful results. It seems as if the conductor and engineer overlooked No. 28 and left Trinidad without orders against it, as it was then 5.30 p. m., and they were going to try and make Forbes Junction for passenger train No. 2 that is due here at 7.25 p. m. The engines were two of the largest on the road. Neither of them left the track and they were towed back to Trinidad.

Bro. Goldtrap leaves a wife and three children to mourn the loss of a kind and affectionate husband and father. Bro. Goldtrap came here from McCook, Neb., and the remains were taken there for burial. Bro. Pearce came here from Emporia, Kan., and leaves a sister and two brothers, one at Osawatomie, Kan., and one at Saligman, Ariz. His remains were taken to Emporia, Kan., and laid to rest. Bro. Fox had only been here about six months, having come here from Michigan. He leaves a wife and one son who reside in Trinidad. Bro. Deveraux had only been here about three weeks, coming here from Las Vegas, N. Mex., and belonged to Apache Lodge 245. His parents live in Mineola, L. I., N. Y., to which place the remains were sent for burial.

Brothers, what a true saying it is, that "in the midst of life we are in death," We do not realize how true it is until some of our friends or brothers are taken from among us. Little did our brothers think of such a thing when they were called for their run that it was to be for the last time, but the Bible says no one, not even the angels in Heaven shall know when we are to die. We should all live a life so that when the Lord sees fit to remove us from this earth we may be prepared to go. In the death of these brothers the Brotherhood loses four good members, and Las Animas Lodge 344 extends its heartfelt sympathy to the sorrowing relatives and friends in this their sad bereavement.

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LODGE 593—(*Jno. Meehan, Port Arthur, Ont.*) The new year has come with all its joys and sorrows, bringing with it another happy young couple, who have been ensnared by Cupid's smiles. Bro. John Scott and Miss Ida Neppla were united in the holy bonds of matrimony on January 7th. Miss Sears of Fort Williams assisted the bride, and Bro. William Smith of Superior Lodge 225 ably supported the groom. At 20.30 the young couple had a reception at the Western Hotel. Bro. Scott thought that a C. N. R. lame compound had got loose from the rails and was tearing down the main street of the city. Bro. Scott accepted the challenge most magnificently, fixing the boys so they swore life-long fealty to him, but Bro. Scott is one of those generous souls who knows how to make everybody happy. All the members of Silver Islet Lodge 593 join in wishing him and his bride every success and happiness in their change of time card through this life. Bro. Scott is not the only one, for a certain jeweler tells me that the B. of L. F. boys have invested very heavily in diamond rings which will one day adorn the graceful fingers of some of the pretty girls of which Port Arthur can so justly and proudly boast.

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LODGE 564—(*C. L. Alexander, Chicago, Ill.*) The last meeting of the "old year" was a very pleasant one, having with us Bro. Timothy Shea, Second Vice Grand Master. This is the first time any of the grand officers have visited us since our organization. All our membership were notified and made a great effort to be present, yet the attendance was smaller than we had hoped or wished it to be. But this is the time of "prosperity" on the road, and nearly all the crews were at work in the yards or out on the road.

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Our Master extended an invitation to Bro. Shea to act as Master, which he did, and he gave us a valuable lesson as to how business should be conducted. We had with us a number of visitors from other lodges, and we are always glad to welcome our old friend, Bro. Fred Myers of 188. He has given us so much encouragement and good advice, we imagine he is one of our membership.

Questions of interest on Brotherhood affairs were discussed by Bros. McCarthy of 429, B. J. Barnes of 52, B. Myers of 188, and B. McElroy and John Lorrimer. We are always proud of Bro. Lorrimer, because he is a brother of "Billy" Lorrimer of political fame and, although not in active railroad service at present, Bro. Lorrimer is an enthusiastic and whole-souled Brotherhood man.

Bro. Shea gave us an interesting explanation of the secret work, and explained the meaning of the new clauses of the by-laws. The unanimous opinion of our members present was that the delegates to the Eighth Biennial Convention at Chattanooga made no mistake when they selected Bro. Timothy Shea as a Vice Grand Master, and we are glad to know that Grand Master Hannahan has assigned Bro. Shea to look after the "Central Territory."

Our lodge, although limited to the men employed on the Chicago Terminal Division of the Pennsylvania Lines, is doing a good work. All our members are taking deep interest, and some of our boys have recently passed over to the side of the "eagle eye," but these remain our best workers. We are now working under one of the best schedules that can be found anywhere in Chicago, and the most cordial feeling exists toward our superintendent, road foreman of engines and trainmaster. Under the direction of Bro. Evans, our Master, we look forward to much success. So look out for 564.

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LODGE 195 — (*Member, Montpelier, Idaho.*) We are pleased to say that we have one of the finest lodges in the West, and that we are ever aspiring to get all the men who are not Brotherhood men into our grand Order. Our goat is well kept but is impatient, as we have to put off our meetings until the accepted candidate can be in, occasioned by a good steady business on the road. We have a membership of fifty-one members, and our genial Master, Bro. Wm. Herzog, is a hustler.

This lodge celebrated with their eighteenth annual masque ball on December 24, 1902, and it was a complete success from start to finish. The hall was nicely decorated, a large number of couples assisted in the grand march, and a neat sum was deposited in the treasury. Too much praise can not be given to our brothers, P. H. Stewart, Wm. Barrett, F. Lintz and S. Hughart for their work on this occasion.

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LODGE 133—(*Member, Spokane, Wash.*) Even though we are up in a corner of the Union we are not far from the heart of the B. of L. F. A few months ago we were visited by one of our grand officers. It was in our rush season and the attendance was not very flattering, at least we were not flattered much on that occasion, but I will venture to say if that officer could have been at our meeting one night recently he would have been agreeably surprised at the change in our lodge. We have one of the finest lodge rooms in the city, and on last Thanksgiving Eve we gave a ball, the proceeds of which was invested in paraphernalia. When we got our well oiled goat dressed up properly there was something doing, at least so thought Bro. Byers, who had the honor of being the first victim this year. The screen work under the able management of Bro. Keller and the lecture by Bro. Glazier were most beautiful and impressive. No one can look upon those scenes without feeling more deeply the duty he owes to his loved ones, and the debt of gratitude to our beloved Order. Nor can he leave a scene of that kind without going away a better man. We missed the presence of our genial and efficient Master, Bro. Burns, but, of course, we couldn't expect him to leave that new baby, even to attend a meeting of the B. of L. F.

Business, which has been rather slack with us for a month on account of slides and washouts, is picking up again and the boys are all kept busy "a spadin' 'er in." Bro. Chapman left yesterday for a two months' visit to his folks in the East. He left here with his pockets full of twenties and his head full of good resolutions. If he is found "up against it" by any brother who will help him out Lodge 133 will make it all right with him.

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LODGE 121—(*Member, Corning, N. Y.*) On the evening of January 22d the Ladies' Society to the B. of L. F. gave a banquet in honor of their first anniversary to the members of Fellowship Lodge 121 and the

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brothers and sisters from Elmira. They served supper from 5 until 8. Then their regular meeting was made short, after which we were all invited into the lodge room and listened to remarks made by several of our brothers and sisters, after which the ladies were presented with a remembrance of the occasion by Bro. Krebs as spokesman for Fellowship Lodge 121.. The business session closed about 9:30, from which time the light fantastic was tripped uptil the small hours, when we bade each other good night hoping to have as good a time at the annual ball of Fellowship Lodge 121, which is to be given February 18, 1903.

We are giving our goat a great deal of exercise lately, as we have from one to five candidates at each meeting to initiate, and as fast as the boys become eligible they join. I hope that our Brotherhood will continue to grow in the future and be as influential as it has in the past.

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LODGE 18—(*A Brother, Slater, Mo.*) We are moving in Lodge 18 once more and are getting back to business again, taking in new members as fast as we can. Our lodge is growing very fast. Bro. Bran of Lodge 571 was a visitor with us for a few days. Bro. J. H. Hull is able to be at the roll-call at meetings again after being disabled for some time, account of falling off his engine some five weeks ago in which he received injuries which kept him laid up. Bro. J. F. Bushman visited Lodge 21 recently and reported a fine time among the brothers of St. Louis, Mo. We have Bros. Blackburn and Driscoll back on the road again after a much needed rest. Bro. J. W. Crumbaugh has left the service of the company to run a plow on his farm just west of town. He is going to raise plenty of apples to throw at the boys as they pass him while on duty. Success to Bro. Crumbaugh. There is plenty of work on the C. & A., and the boys are staying with it.

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LODGE 60—(*Member, Philadelphia, Pa.*) Bro. Walter Yeakle while at work on the Chestnut Hill Branch of the P. & R. R. R. fell from his engine, No. 265, and was hurt very badly. He was taken to the Germantown Hospital, where he stayed for a few weeks, but we are all glad to see him at home again, and want to see him at lodge again, for he was missed by all the brothers. Some of the boys on our road have received a raise of 10 per cent. in wages, and I hope they will all get it soon, for that is what we are working for. I am glad to see so many of them getting on the right-hand side. We have a good strong goat, which is getting good exercise at present and hope it will continue so. We have a membership of about 137 and would like to see more of them at the meetings.

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LODGE 590—(*J. L. Thompson, Beaumont, Tex.*) We were organized by Third Vice Grand Master C. W. Maier on January 19, 1902, with twenty-two charter members, and our first anniversary finds us with a membership of seventy-three after having lost several by transfer. We also have several applications on the table and new ones coming in every few days. We have from twenty-five to thirty-five members present at every meeting, which I think is a pretty good attendance considering that we represent four roads, and a good many of our members have their headquarters at other points. In fact, one road represented by us does not enter Beaumont at all. Some of our members come as far as twenty miles, and seldom miss a meeting. A Ladies' Society is our only shortcoming, and I think it is only a matter of a short time until we will have that. I think every lodge would profit by having a Ladies' Society, and am sure that none would lose by it.

Bro. J. H. Davidson surprised us all recently by taking unto himself a wife, and as a result he is generally among the missing on meeting nights, but guess he will get over that in time. Every brother who happens to be in Beaumont on our meeting night is extended a hearty welcome to attend, and we can generally entertain him with an initiation. I only remember one meeting since we were organized that we didn't have work for our goat, and have seen "Billy" entertain five at one meeting, and three on several occasions. He never seems to tire; in fact, I believe that the more he handles the rougher he gets. At least they all seem to be satisfied that they have "got their money's worth" when he gets through with them. We would be glad to have some of the grand officers visit us at any time, and we will guarantee them a royal reception.

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LODGE 235—(*Member, Pittsburg, Pa.*) I am sorry that I did not get in in time for our last regular meeting, as we had a visit from our First Vice Grand Master, C. A. Wilson, whom I know the brothers are always glad to see, and I think we need someone like Bro. Wilson to wake

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us up and show us the way to be true and loyal brothers. Come again, Bro. Wilson, but let us know a little sooner and we will try and have a full house for you.

A few of our promoted brothers are leaving us to join the B. of L. E. Think well, my brothers, before you make the change. If you can't get insurance and protection in the B. of L. F. you can not get it in any railway organization in existence today, for our by-laws and constitution cover both sides of an engine, and what we want to do is to work in harmony together as a Brotherhood of Locomotive Firemen and Engineers. We have on our local board two enginemen and one fireman since Bro. Mench has been promoted to the right side. So, brothers, come to lodge, talk it over and see if the B. of L. F. can't do as much for you as any other railway organization. Remember that what the railway corporations want is to separate us on an engine, but we have the key if we only stick together as loyal Brotherhood of Locomotive Firemen and Enginemen, and it will only be a matter of time when we reach the top of the ladder of railway organizations.

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LODGE 302—(*A Brother, Connellsville, Pa.*) It is with a sad heart we announce that on December 30, 1902, we had to drape our charter in respect to our departed brother, W. M. Danford, who after a short illness of typhoid fever, died in the presence of his loved ones. His remains were taken to Liberty Center, Ohio, for interment, accompanied by Bros. O'Connor, Stortz, Kenny and others, who saw that our beloved brother was laid to rest as becomes the tried and true. Bro. Danford was happy in the thought that he had just shortly gone to the right side. He was regarded with great esteem in the lodge of which he was a faithful member, and was admired by all who knew him. His friends were countless, and to know him was to respect and honor him. When we grasped his hand we realized a feeling of deep friendship and brotherly love.

How sad to think the Great Almighty should take unto Himself such a great man, when he had just come to the age of maturity. Seemingly, there would be a power in this world to aid and protect the weaker ones, but we must bow in humble submission to the Master above, and let us think and look back to the time when our Savior prayed in the Garden of Gethsemane. Our Lord taught us by His word that we must leave all to the Master above. "Not my will, but Thy will be done." So let us not be faint nor sleeping while the Master is awake and praying, but let us go forth with renewed courage and strive to elevate ourselves among men, keeping in view the life of our departed brother, who crossed the bridge to the great beyond. How feeble are words to express our sincere sympathy to a bereaved and broken-hearted wife and little daughter.

We, the members of Youghiogheny Lodge 302, express our heartfelt sympathy to these sorrowing ones, and pray God to give them strength and succor them to bear their irreparable loss.

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LODGE 309—(*James F. Geraghty, New York, N. Y.*) It is with a sad heart and many regrets that I have to announce the death of Bro. Edward Hill, who was killed by the blowing out of the plugs in the firebox of his engine on the N. Y., N. H. & H. R. R., Tuesday, February 3d. Engineer Joseph Bannon escaped by holding on to the side of the cab window. Bro. Hill will be missed by the members of this lodge and by all who knew him, for he was a true friend to all Brotherhood men and Brotherhood principles. He leaves a widow who has the heartfelt sympathy of all who knew him, for he was a loving, kind and true husband, a first-class fireman and a fearless one. Too much thanks can not be given Engineers Bannon, Simpson, McClellan, Croup and Maloney and to the members of Lodges 284 and 149 for their efforts to assist and help the widow in her sad bereavement. Bros. Hopkins, Smith, Jewell, Ott and Joy of this lodge, Felix McCarthy of Lodge 1, and McGee of Lodge 284, accompanied the remains to Mt. Olivet Cemetery, Long Island, where the last sad rites were performed. Many flowers were contributed by his fellow workmen on the N. Y., N. H. & H. R. R. and by this lodge.

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THE WRECK OF THE SUNSET LIMITED —(*R. W. Anderson, Tucson, Ariz.*)* On the morning of January 28th occurred the most appalling and disastrous collision that ever happened in this section of the country, and we are called upon to drape our charter for our departed brother, George McGrath. His train, No. 9, the Sunset Limited, was running at the rate of fifty miles an hour, when it collided with No. 8, the Atlantic Express, going at the rate of twenty-five

*Illustrations of this wreck are published in this issue.

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miles an hour. Both engineers were killed, but Bro. Gilbert, who was firing No. 8, escaped with pretty serious injuries. Mr. J. W. Bruce, the engineer of No. 9, had been running on this division about twenty-three years. Mr. Robert Wilkey, the engineer of No. 8, was an extra man and had only been on the run two or three trips, while the regular man was laying off.

To add to the horrors of the catastrophe, the wreckage immediately took fire, and both engines being oil burners, the oil ignited and made it impossible for anyone to get near the engines. Poor McGrath, Bruce and Wilkey were simply cremated. There were only a few bones left of Bruce. There was enough left of McGrath and Wilkey to tell they were human bodies, but the only way they could be identified was by their watches, and Bro. McGrath also wore a diamond ring. It is not definitely known how many passengers perished, but there were ten or twelve bodies recovered. There were eleven cars burned, five on No. 8 and six on No. 9. The engines were completely demolished, the boilers and cylinders being torn from the frames.

The scene of the collision is fifteen miles east of Tucson, near a sidetrack called Esmond. The cause of the accident was the failure of the operator at the station six miles east of Esmond to deliver an order to the conductor to meet No. 8 at Esmond. No. 9 was thirteen hours late and was running as first section of No. 7. No. 8 was at the whistling post and just leaving a curve. It is on a heavy grade and one can imagine what an awful crash it must have been when the two monster engines came together. Bro. McGrath and the engineers were evidently killed instantly. It is the opinion of some that Bro. McGrath was washing up, as he had been in the habit of so doing after leaving Vail, where they should have received the order to meet No. 8 at Esmond, as it is down hill all the way to Tucson.

Bro. McGrath was of a genial, happy disposition, always joking and laughing, and was universally liked by all who knew him. The lodge held funeral services at the undertaking parlors and escorted the body to the depot, whence it was shipped to his aged parents at Waterbury, Vt. The members of the Ladies' Society turned out in force and tears were plainly visible on many faces, showing plainly the high esteem in which he was held. Bro. Frank McCaffrey, who came here with him from his Green Mountain home five years ago, accompanied the remains, as did also a cousin of Bro. McGrath, who is a conductor running out of Proenix on the Santa Fe.

Oh, how sad it will be for the aged father and mother when the body of their son, who was in the bloom of manhood and in the enjoyment of health, and whose life was blotted out in the twinkling of an eye, is brought home, an unrecognized, charred mass. Again are we forcibly reminded that life is uncertain and death is sure. Death comes like a thief in the night and takes away that which only the Creator can return.

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LODGE 592—(*Member, Weston, W. Va.*) It is with a sad and heavy heart that I announce the death of a true and trusted brother, that of Bro. Earl Jarvis, who was seriously hurt on February 8, 1903, at Deanville by the engine and tender separating, which caused Bro. Jarvis to fall in front of the tender, it and the pilot of the helping engine passing over him, resulting in his death at 8:15 p. m. while on the way to the hospital. The funeral services were held at the home of his father, on Murphy's Creek, being conducted by B. of L. F. Lodges 592 and 223, and the A. O. U. W. Lodge, of which he was a member. How feeble are words to express our sympathy to a bereaved and broken-hearted wife, mother, father, sister and brother. Lodge 592 extends its heartfelt sympathy to these sorrowing ones, and we pray that God will give them strength and succor them to bear their irreparable loss. We wish to thank our foreman, Mr. A. H. Hodges, for the kindness he showed us in letting our boys off to attend the funeral, also Green Valley Lodge 223 for its assistance.

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LODGE 355—(*Mrs. Mary Picard, Sec. L. S. 100, Joliet, Ill.*) On Tuesday evening, January 19, 1903, Bro. Charles Tarr, a fireman on the E., J. & E. R. R., was killed while driving to his work by being run over on the Henderson Avenue crossing of the Rock Island Railroad. A sad feature of his death was the fact that it was the engine he fired nights that killed him, and his engineer, James Morse, was riding to work and was the first one to reach him after the accident. Bro. Tarr was killed instantly. The engine was still in charge of the day crew and was delivering cars to the Rock Island Railroad when the accident happened. In the death of Bro. Tarr Lodge 355 has lost a good member and deeply

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deplores his untimely death. Bro. Tarr leaves a young wife, two small children, a widowed mother, brothers and sisters and a host of friends. His family has the sympathy of the brothers of 355 and of the sisters of L. S. to the B. of L. F. 100, of which lodge his wife is a member. The funeral took place from the home of his wife's father and was in charge of the B. of L. F., who conducted their services. Afterwards his body was taken to Angola, Ind., the home of his mother, for burial, being accompanied by Bro. Harry Payne, the Master of 355; Bro. and Sister Petrie, Bro. and Sister Arrasmith and Bro. Robert Rohel, the E., J. & E. R. R. kindly furnishing transportation for all who wished to go. There were some beautiful floral offerings from the B. of L. F., L. S. to the B. of L. F., B. of L. E. and B. of R. T.

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LODGE 520—(*Member, Stellarton, N. S.*) Although we are the farthest "Way down East," I hope before long to see a lodge started at Sydney, C. B., "the Iron City of Canada." I take pleasure in saying that we are still striving to uphold the organization. As the twenty-ninth anniversary of the B. of L. F. came on December 1st, we tried our hand at celebrating, and so we did in grand style. We gave an entertainment, supper and ball. Just as the town clock had ceased striking the hour of 8 our orchestra started to play, which meant the opening of the B. of L. F. entertainment. Then Past Master Scott, who acted as chairman, gave an address touching on the good and growth of the Order. The entertainment lasted for over two hours. Then the audience left for that part of the hall where the "spread" was. After the inner man had been satisfied the younger folks went to the ball room. Bros. Patriquin and Conway with their better halves started the ball rolling, opening with the grand march, and kept it rolling until the "wee sma' 'ours," when everybody left for home, wishing success for the future of the B. of L. F., especially Lodge 520, and hoping to see another December 1st come soon.

The Murray Orchestra furnished the music for the dancing. The committee of arrangements deserve credit for the splendid time they gave us, and for securing Miss Jessie V. Culton, the star piano player of the Province, and such a lovely piano, which was kindly loaned by Mr. J. W. Ross, of the Willis Piano and Organ Company, of Montreal.

We have a neat little membership and are getting the "goat" ready for the next meeting. The weather is so cold that if the goat isn't kept busy he is very apt to catch cold. Bro. Scott reports a grand time at the convention, and if the grand officers are as good as their photos in the Magazine we can bring our membership up to 55,000 for our next convention. I wish them and the Magazine success.

♣ ♣ ♣

LODGE 86—(*Member, Laramie, Wyo.*) Lodge 86 is doing very well and business is very good here. I wish that our Vice-Grand Masters would not forget us entirely, as they seem to have done, and hope that they will give us a call soon. I wish to say that the last convention enacted one good law among many others, that is the law doing away with the everlasting raffle tickets, which used to be a very annoying feature, and of no benefit to anyone. There is another thing which is very disheartening, but I don't know as we can reach that by a law, but it should be looked after most strenuously, and that is the habit of a great many of the officers of our local lodges in ignoring letters that are written to them by officers and members of other lodges. Now, brothers, I speak from an experience of ten years in office, and I wish to say that there are a number of members who hold office and who it is impossible to get an answer from to any letter on any subject. Brothers, don't you think it would be better to answer all correspondence from any brother who may write you, even though it may seem to you to be of little importance? It may be of a good deal of importance to the one who writes you, and it certainly will not hurt you if it does not benefit him. It may create a little more brotherly love, and if there is one thing we need more than any other, it is that. Therefore, do not be economical with your stamps, paper and envelopes.

♣ ♣ ♣

LODGE 500—(*John Erhardt, Anaconda, Mont.*) "Boast not thyself of tomorrow. Thou knowest not what a day may bring forth." This expressive saying of the Bible is very true, more so of late than any other time in the history of railroads. Destruction of life and property is almost of every-day occurrence. The loss of a friend and brother calls for our contemplation of another life toward which we all are trending, the life beyond the grave, the grave so beautifully portrayed by Irving. Oh! the grave. It buries every error, covers every defect,

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extinguishes every resentment. From its peaceful bosom spring none but fond regrets and tender recollections. Who can look down upon the grave, even of an enemy, and not feel a throb of compunction?"

Copper City Lodge 500 mourns the loss of a member who met death at his post of duty, Bro. Mike Madden, who was killed instantly on January 16th by being struck on the head by the coal house at Arlington tank, on the Texas and Pacific Railroad. He was an old-timer in the West, and worked on the U. P. and the Oregon Short Line for many years, till a year ago he was on the B., A. & P. R. R. in Montana. He was well liked by all who knew him, and in regretting his removal from among our midst we mourn for one who was in every way worthy of our respect and esteem. May he rest in peace.

♣ ♣ ♣

LODGE 576—(*Charles G. Peck, Cadillac, Mich.*) On January 10th a wreck occurred two miles south of Elmira on the Grand Rapids and Indiana Railroad, seriously injuring Bro. F. J. Emesley, who died two days later from the effects. Engine 47, pulling a log train, is supposed to have left the rails on a crossing and was ditched, the engine going off on one side of the track and the tender on the other, both completely turning around. Bro. Emesley at the time of the accident was standing in the gangway and it is not known exactly just how he received his injuries, but it is supposed that a car of logs passed over him, severing the right foot and badly bruising his body. The death of Bro. Emesley marks the loss of the first member of our lodge and one whom we all held in high esteem. He was a faithful worker in our Order and was much thought of by all who knew him. He leaves a wife, mother, five sisters and a host of friends and brothers to mourn his loss. The remains were interred in the Cadillac Cemetery, that city being his residence at the time of his death. A fine floral display attended the ceremony.

♣ ♣ ♣

LODGE 352—(*F. J. Curry, St. Albans, Vt.*) It is with a sad heart and a keen sense of sorrow that we drape our charter in memory of Bro. James C. McDougall, who died of consumption after an illness of seven months. He was a true Brotherhood man and was always working for the benefit of the Order. He leaves a wife and daughter, who have the sympathy of the entire lodge in their sad bereavement.

♣ ♣ ♣

LODGE 267—(*William M. Whelan, Algiers, La.*) Death casts upon all men a feeling of despair, and even though "all men are born to die," yet when it overtakes one of our own we are plunged into deepest sorrow, and can only bow our heads and say, 'Thy will be done." Bro. J. R. Lewis on the first day of February died after an illness of but three days. Bro. Lewis by diligent work had been this past year promoted to the position of engineer. He came from Amite, La., where his body was shipped for interment. The sad deaths of three of our members coming so suddenly upon us can hardly be realized by the brothers, and words can but speak lightly of the sorrow felt by them, and the fire of love will always burn brightly on the altar of our hearts.

Bro. Shea visited our lodge for the first time and the boys were all glad to see him. He came as a stranger, but left with a host of friends among the boys of 267 and 159. We hope Bro. Shea will not be long in visiting us again.

♣ ♣ ♣ ♣ ♣

No use to hunt the happy days—
They're with you all the time;
They're loafing with you 'long the ways
An' singin' in rhyme.
No use to search the world around
And think they're far and fleet;
The brightest of 'em still are found
In violets at your feet.
—Atlanta Constitution.

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Official

Special and Very Important.

Official Circular No. 9—1902-1903.

PEORIA, ILL., February 7, 1903.

To All Lodge Officers and Members:

Sirs and Brothers—Law suits brought against the Grand Lodge of the Brotherhood of Locomotive Firemen, as well as all other labor organizations, become more frequent each year. Particularly is this true with regard to the insurance department, or where money is involved. Sometimes suits are begun by service of summons on local lodge officials and members, instead of on the Grand Lodge officials. It is very necessary and important in every instance where an officer or member of a local lodge is served with a summons that the papers so served be sent *at once* either to John H. Murphy, attorney at law, 502 Kittredge Building, Denver, Col., or to F. W. Arnold, Grand Secretary and Treasurer, Peoria, Ill. Failure or neglect to do this is quite likely to result in a judgment by default being obtained against the Brotherhood, involving a large sum of money, when by your sending the papers at once to either address above might save to the Brotherhood money that it is not entitled to pay. Please bear this in mind and send every court paper, wherein the Grand Lodge is involved, direct to either brother above named.

F. W. ARNOLD,
Grand Secretary and Treasurer.

Approved:

JOHN J. HANNAHAN,
Grand Master.

Addresses Wanted.

Requests have reached this office to publish notices inquiring for the present addresses, or any information concerning the following persons. Information should be sent to the person specified in notice:

J. E. Butler.—Last heard of was about last April, when he quit the Wabash Railroad at Ashley. He is dark complected, smooth shaven and has a habit of batting his eyes a great deal. Any information as to his present whereabouts will be gladly received by C. Wohnlich, Box 88, Ashley, Ind.

Henry D. Murphy.—Has not been heard from since July 10, 1902. Was at that time at work on some road near Pittsburg, Pa. Anyone knowing his present address kindly communicate with Mrs. Henry D. Murphy, Christiansburg, Montgomery County, Virginia.

John C. Holland.—Is twenty-six years old. Has worked in the capacity of fireman for the Colorado and Southern at Denver and Pueblo, and was recently heard from in Trinidad, Col. He claimed to have been a member of the Brotherhood of Locomotive Firemen. Anyone knowing his present whereabouts kindly communicate with the Citizens' Loan Company, 319 Charles Building, Denver, Col.



S. J. Tearney.

S. J. Tearney.—Mr. S. J. Tearney was a fireman employed on the Canadian Northern Railway, and was killed in a head-end collision December 2, 1902. He was not a member of the B. of L. F., and no trace of his relatives can be found. His age was about 22 years, height 5 feet 8 inches. He came to Port Arthur from Toronto, Ont., and had been there only a short time. Anyone knowing the residence of any of his relatives will kindly oblige by writing to the Secretary of Lodge 593, B. of L. F., Port Arthur, Ont.

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John Murdoch.—Left the service of the Compania Limitada del Ferrocarril Central Mexicano, in November, 1898. Worked for the Interoceanic Railway of Mexico from December 21, 1898, to January 4, 1899. Last address February 26, 1900, was Calls de Santa Iries No. 4, Mexico City, Mexico. Anyone knowing anything about the said John Murdoch or his present whereabouts will please communicate with Alex Dunbar, Box 48, Palmerston, Ont.

Lost Traveling Cards, Etc.

This office has been notified of the loss of the following traveling cards, receipts, etc., and the request is made that all members be on the lookout for them. Should they be discovered in possession of persons not entitled to them, they should be retained and forwarded to owner or to the secretary of the lodge which issued same:

Receipt of James A. Welling of Lodge 275.—Receipt for the quarter ending March 31, 1903, lost while looking for employment in Marshall, Tex. If found please return to James A. Welling, Little Rock, Ark.

Traveling Card of Emanuel Ricker of Lodge 107.—Traveling card lost. If found please return to G. W. Bellis, Secretary Lodge 107, 560 South Market street, Galion, Ohio.

Receipt and Traveling Card of W. B. Harkins of Lodge 607.—Receipt and traveling card has been lost and the brothers are requested to look out for same. If found please return to W. B. Harkins, Box 451, Ogden, Utah.

Acknowledgments.

The following persons desire to acknowledge receipt of payment of claims, and to express their gratitude to the Brotherhood of Locomotive Firemen as an organization, and to the individual members for kindnesses and courtesies extended:

Caroline Crossley, Belleville, Ont.

Mrs .John Conway, Newton, Kan.

Addie Laughton, conservator of George Laughton, Leadville, Col.

Rebecca Corl, Blue Knob, Pa.

B. B. Lytle, Finleyville, Pa.

Fred Krauel, Highland Park, Ill.

Mr. and Mrs. Abram Myers, Kansas City, Kan.

Balls and Entertainments.

Courteous invitations have been received at this office to attend the following balls and entertainments. The Grand Lodge force returns thanks and wish all an enjoyable and successful time:

Lodge 13.—Fifth grand ball at Columbia Hall, corner of Cator and Ocean avenues, Jersey City, N. J., Tuesday evening, February 10, 1903.

Lodge 163.—Fourteenth annual ball, at Bluff City Hall, Pine Bluff, Ark., Tuesday evening, January 27, 1903.

Lodge 157.—Third grand ball, at Grand Army Hall, Peru, Ind., Thursday evening, February 19, 1903.

Lodge 79.—Fourth annual ball, at Vandercook Hall, Cherokee, Iowa, Thursday evening, February 12, 1903.

Lodge 579.—Second annual ball, at Opera House, Montevideo, Minn., Thursday, February 12, 1903.

The Home Account.

The following donations were received at the Home for Aged and Disabled Railway Employes for the month of January, 1903:

B. of L. F. Lodge 86.....	$6 00
L. S. to B. of L. F. Lodge 73....	5 00
O. R. C. Divisions.....	83 00
B. of R. T. Lodges.....	50 00
B. of L. E. Divisions.....	27 00
L. A. to O. R. C. Divisions.....	3 45
G. I. A. to B. of L. E. Divisions.	19 00
Mrs. William Winston, account of burial expenses of husband, who died at the Home January 12, 1903	62 00
Grand total	$255 45

Miscellaneous.—G. I. A. 79, box of canned fruits; L. S. to B. of L. F. 40, box of canned fruits.

Note.—The ladies of L. A. to O. R. C. 84 have taken out membership in the Home in favor of O. R. C. Division 111.

Respectfully submitted,

MRS. T. B. WATSON,
Sec. and Treas. R. R. M. H.

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Beneficiary Statement

To Subordinate Lodges:

Office of Grand Secretary and Treasurer,
Peoria, Ill., February 1, 1903.

The following is a statement of receipts in the Beneficiary Department for the month of January, 1903:

RECEIPTS.

Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.
1	370 00	63	118 00	125	60 50	187	80 00	249	163 00	311	85 75	373	99 75	435	70 00	497	111 75	559	64 00		
2	38 00	64	197 25	126	107 75	188	247 25	250	164 75	312	107 00	374	118 25	436	207 25	498	77 75	560	44 50		
3	637 50	65	164 00	127	140 75	189	172 25	251	264 75	313	69 25	375	80 50	437	27 75	499	39 50	561	49 25		
4	128 00	66	125 75	128	74 00	190	16 00	252	256 00	314	158 75	376	68 75	438	70 50	500	74 50	562	100 75		
5	314 25	67	144 25	129	208 25	191	139 75	253	167 50	315		377	168 50	439	32 25	501	105 00	563	141 00		
6		68	93 00	130	269 75	192		254	111 50	316	210 00	378	419 75	440	156 00	502	150 50	564	59 25		
7	122 25	69	66 25	131	54 00	193	71 50	255	78 75	317	74 75	379	184 50	441	130 75	503	82 00	565	50 50		
8	342 75	70	117 25	132	113 00	194	219 00	256	80 50	318	288 50	380	22 00	442	64 00	504	38 25	566	105 75		
9		71	201 00	133	155 50	195	87 50	257	94 50	319	148 25	381	136 25	443	112 25	505	62 75	567			
10	605 50	72	361 50	134	106 50	196	46 25	258		320	73 75	382	84 25	444	161 00	506	76 75	568	106 75		
11	187 25	73	246 75	135	150 75	197	106 75	259	78 50	321	59 25	383	126 75	445	69 00	507	39 25	569	69 75		
12	290 50	74	132 50	136		198	181 00	260	121 50	322	51 25	384	102 00	446	349 50	508	189 50	570	42 75		
13	382 25	75	422 00	137	77 50	199	111 00	261	50 75	323	84 00	385	75 00	447	51 50	509	51 00	571	53 50		
14	280 25	76	27 50	138	281 25	200	102 25	262	174 75	324	63 25	386	26 00	448	452 25	510	167 00	572	38 25		
15	112 75	77	330 00	139	226 75	201	222 00	263	111 00	325	120 50	387	48 50	449	173 00	511	131 00	573	49 25		
16	295 50	78	196 25	140	323 50	202	153 50	264	69 25	326	243 75	388	195 50	450	119 00	512	84 00	574	62 75		
17	210 00	79	43 50	141	389 75	203	194 75	265	230 75	327	174 25	389	105 75	451	90 25	513	111 75	575			
18		80	195 50	142	209 75	204	133 50	266	157 00	328	69 50	390	150 00	452	90 75	514	80 25	576	61 00		
19	198 25	81	147 75	143	215 25	205	95 50	267	150 00	329	54 00	391	149 00	453		515	87 25	577			
20	38 00	82	208 25	144		206	55 00	268	32 50	330	175 00	392	149 75	454	132 00	516		578	68 25		
21	161 75	83	197 25	145	227 75	207	200 00	269	163 25	331	51 25	393	119 50	455	90 50	517		579	47 25		
22	71 50	84	159 25	146	312 50	208	83 75	270	109 75	332	106 00	394	18 00	456	74 25	518	31 25	580	18 00		
23	85 00	85	169 50	147	161 00	209	151 25	271	94 00	333	249 00	395	72 25	457	137 50	519	113 50	581	20 50		
24	168 00	86	185 75	148	116 25	210	59 75	272	49 50	334	190 75	396	110 75	458	33 00	520	43 75	582	128 00		
25	307 25	87	80 50	149	708 00	211	179 50	273	149 50	335		397	45 00	459	60 00	521	67 00	583	52 50		
26	193 25	88	119 00	150	204 50	212	114 75	274	53 75	336	70 75	398	79 75	460	63 75	522		584			
27	196 75	89	66 00	151	85 75	213	173 25	275	249 75	337	185 50	399	47 00	461		523	82 75	585	88 50		
28	156 25	90		152	149 00	214	235 25	276	151 75	338	152 00	400	139 25	462	109 75	524	15 00	586			
29	93 25	91		153	110 25	215	234 00	277	95 00	339	46 25	401	234 75	463	133 50	525	69 75	587	113 75		
30	137 25	92	99 75	154	107 25	216	80 00	278	23 50	340	126 00	402	76 00	464		526	34 50	588	34 00		
31	84 50	93	106 25	155	138 50	217	133 00	279	58 50	341	201 25	403	41 00	465	213 25	527	96 25	589	60 75		
32	162 75	94	264 25	156	188 75	218	207 75	280	94 25	342	171 25	404		466	106 50	528	92 50	590	125 00		
33	101 25	95	36 50	157	63 50	219	175 00	281	156 50	343		405	135 00	467	63 25	529	162 25	591	35 50		
34	246 00	96	134 25	158	71 50	220	433 00	282	24 75	344		406	40 25	468	37 75	530	104 50	592	47 00		
35	76 50	97		159	126 00	221	155 25	283	100 75	345	154 75	407	97 75	469	55 00	531	68 50	593	33 00		
36	141 00	98	149 25	160	114 75	222	159 25	284	403 50	346		408	149 00	470	153 00	532	48 50	594	86 25		
37	129 50	99	499 00	161	25 00	223	196 00	285	274 50	347	82 00	409	118 50	471	36 25	533	63 25	595	54 25		
38	102 50	100		162	276 25	224	49 50	286		348	98 25	410	156 75	472	176 00	534	167 00	596	99 25		
39	115 25	101	262 25	163	130 50	225	43 75	287	490 75	349	293 50	411	186 75	473	65 00	535	60 00	597	54 50		
40		102	92 50	164	88 75	226	204 25	288	111 75	350		412	130 25	474	107 25	536	46 25	598	79 00		
41		103	153 00	165	58 00	227	58 25	289	129 75	351	29 50	413	38 75	475	112 00	537		599	32 50		
42	30 00	104	127 25	166	247 50	228	334 50	290	90 25	352	104 50	414	78 75	476	52 00	538	103 75	600	58 25		
43	74 50	105	63 00	167	102 50	229	255 25	291	83 00	353		415		477		539	80 50	601	66 50		
44	168 75	106	74 00	168	94 00	230	538 50	292	49 25	354	171 75	416	333 00	478	173 25	540	137 50	602	102 50		
45	333 00	107	196 25	169	315 50	231	326 00	293	99 50	355		417	81 25	479	117 25	541	73 75	603	33 00		
46	54 25	108	131 25	170	89 75	232	157 00	294	89 00	356	146 75	418	380 00	480	38 00	542	118 00	604	28 75		
47	255 50	109	181 75	171	78 00	233	142 50	295	192 50	357	61 75	419	88 00	481	100 00	543	218 00	605	62 00		
48	283 25	110	146 75	172	75 50	234	83 75	296	163 00	358	63 50	420	102 50	482	136 25	544	73 00	606	42 50		
49	66 75	111	152 25	173	164 00	235	330 25	297	144 75	359	47 50	421	56 75	483		545	76 25	607	48 00		
50	38 00	112	43 25	174	833 00	236	335 75	298	104 50	360	122 50	422	66 75	484	130 00	546	61 50	608			
51	144 75	113	189 25	175	295 50	237	382 50	299	112 50	361	84 00	423	50 00	485	676 50	547	42 50	609	43 75		
52	213 50	114	45 00	176	158 00	238	183 75	300	136 25	362	46 00	424	82 75	486	95 75	548	66 75	610	33 75		
53	98 75	115		177	119 00	239	156 50	301	93 00	363	295 50	425	81 00	487	18 25	549	69 50	611	42 75		
54	165 50	116	78 00	178	217 75	240	233 50	302	210 00	364	164 00	426	174 25	488	71 00	550	40 75	612	65 50		
55	46 00	117	98 75	179	27 00	241	220 00	303	91 50	365	62 00	427	67 25	489	115 50	551	90 75	613	43 25		
56	105 00	118	55 75	180	12 00	242	208 00	304		366	58 75	428	63 50	490	145 00	552	94 50	614	148 75		
57	487 25	119	89 00	181	34 25	243	91 00	305	66 50	367	92 00	429	121 50	491	39 50	553	54 00	615			
58	106 00	120	155 25	182	217 25	244	103 50	306	221 75	368	101 25	430		492	149 50	554	58 25	616	39 00		
59	337 25	121	569 00	183	170 25	245	111 50	307	133 50	369	99 75	431	240 50	493	90 00	555	36 00	617	31 00		
60	240 25	122	46 25	184	75 00	246	122 50	308	46 00	370	24 50	432	210 00	494	102 75	556	54 75	618	25 00		
61	124 00	123	165 75	185	84 50	247	253 00	309	293 75	371	109 50	433	56 50	495	62 00	557	148 00	619	42 50		
62	79 75	124	152 25	186	7 75	248	173 00	310	158 25	372	119 50	434	108 50	496		558	75 50	...			

Received during month of January.....$76,893.25

Disbursed during month of January, account Beneficiary Claims..... 36 @ $1,500 = $54,000; 4 @ 1,000 = 4,000; 3 @ 500 = 1,500 59,500.00

Respectfully submitted,

G. S. and T.

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Quarterly Dues Notice.

OFFICE OF THE GRAND LODGE, B. OF L. F.
PEORIA, ILL., March 1, 1903.

To Members of Subordinate Lodges:

SIRS AND BROTHERS:—You are hereby notified that the dues for the quarter ending June 30, 1903, are now payable and must be paid to the Collector of your Lodge on or before April 1, 1903. Said dues shall be such an amount as may be determined by the several Lodges, provided, in no case shall it be less than nine dollars ($9.00) for each member carrying a beneficiary certificate of three thousand dollars ($3,000), six dollars ($6.00) for each member carrying a beneficiary certificate of two thousand dollars ($2,000), four dollars and fifty cents ($4.50) for each member carrying a beneficiary certificate of fifteen hundred dollars ($1,500), three dollars and fifty cents ($3.50) for a member carrying a certificate of one thousand dollars ($1,000), and two dollars ($2.00) for a member who shall carry a certificate of five hundred dollars ($500). All beneficiary members now enrolled, and those admitted prior to May 1, 1903, are liable for the dues above referred to. All members initiated during the months of May and June will be exempt from the payment of dues for the said quarter, as provided in Section 172 of the Constitution. Beneficiary members initiated during the month of April are liable for the full amount of quarterly dues for the above quarter. All officers and members are earnestly requested to give the foregoing their careful and strict attention, and govern themselves accordingly. Any member failing or declining to make payment as above provided will be subject to the penalty of expulsion from the Order, as per Section 174 of the Constitution, said expulsion taking effect April 2, 1903.

Yours fraternally,

F. W. ARNOLD, G. S. and T. J. J. HANNAHAN, G. M.

Notice to Treasurers.

OFFICE OF THE GRAND LODGE, B. OF L. F.
PEORIA, ILL., March 1, 1903.

To the Treasurers of Subordinate Lodges:

SIRS AND BROTHERS:—You are hereby notified, as provided in Section 62 of the Constitution, that no beneficiary assessment is required for the month of March, 1903, and that therefore none has been levied for said month.

Yours fraternally,

F. W. ARNOLD, G. S. and T. J. J. HANNAHAN, G. M.

Notice to Secretaries.

OFFICE OF THE GRAND LODGE, B. OF L. F.
PEORIA, ILL., March 1, 1903.

To Secretaries of Subordinate Lodges:

SIRS AND BROTHERS:—Pursuant to Section 174 of the Constitution, you are required to report to the Grand Lodge as expelled all members who fail to make payment of their Quarterly Dues or Protective Fund Assessments for the quarter ending June 30, 1903, The names of said members must be reported to you by the Collector of your Lodge not later than April 2d, and by you reported to the Grand Lodge, as per Section 174 of the Constitution, immediately thereafter. Failing to report the names of expelled members as herein provided, the Grand Lodge will hold subordinate Lodges liable for their assessments, as per Section 65 of the Constitution.

Yours fraternally,

F. W. ARNOLD, G. S. and T. J. J. HANNAHAN, G. M.

Protective Fund Assessment Notice No. 2.

OFFICE OF THE GRAND LODGE, B. OF L. F.
PEORIA, ILL., March 1, 1903.

To Members of Subordinate Lodges:

SIRS AND BROTHERS:—You are hereby notified that Protective Fund Assessment No. 2 for the quarter ending June 30, 1903, is now payable and must be paid to the Collector of your Lodge on or before April 1, 1903. All beneficiary and non-beneficiary members now enrolled and those admitted prior to May 1, 1903, are liable for this assessment. All members initiated during the months of May and June are exempt from the payment of Protective Fund Assessment for the above quarter. Any assessable member failing or declining to make payment as above provided, will be subject to the penalty of expulsion, said expulsion taking effect April 2, 1903.

Yours fraternally,

F. W. ARNOLD, G. S. and T. J. J. HANNAHAN, G. M.

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Words of Appreciation and Encouragement.

In an official circular issued January 20, 1903, Grand Master Hannahan, under the head of "Ladies' Society," pays a tribute to our Order. He also calls the attention of the members of the B. of L. F. to their duty, in regard to the Ladies' Society. He writes as follows: "In my travels throughout the country it has been a pleasure to note the good work that has been accomplished by the Ladies' Society of the B. of L. F. A number of instances have come to our notice where our lodges owe a large amount of their prosperity to the assistance that is given to them by the Ladies' Society. The members of said Society seem to vie with each other in their efforts, not only to make their Society a success, but in every way possible to advance the interest and welfare of the lodges of our organization, and there is no denying the fact that they are accomplishing a great work in this direction. It is the duty of the members of our organization to do all in their power to assist the ladies in making their organization a success, and we hope that our members will not let an opportunity pass by that will enable them to do what they can to build up the Ladies' Society B. of L. F. They certainly deserve the encouragement and assistance of every member of our organization, and we trust that all will join hands and do what they can to help them along."

The Ladies' Society is most grateful for these words of appreciation and encouragement. They can not fail to be of great benefit to the Society.

Grand Master Hannahan has always stood ready to assist the Ladies' Society and many times has gone out of his way to aid and encourage our lodges. At Chattanooga he was kindness itself. Long may the B. of L. F. be permitted the guidance of that brainy, far-seeing leader, John J. Hannahan, who, since his election to the office of Grand Master, has made a record over which the B. of L. F. is more than enthusiastic and of which every sister in the Ladies' Society is proud.

* * *

Fraternal Insurance.

The national meeting of the Modern Woodmen will be held in Indianapolis June 16th. Of this meeting the Bee Hive says: "No event in the year will equal in importance, to all fraternal insurance orders, the meeting of the Head Camp."

According to statements made by the head officers, a crisis now confronts this society, that not only threatens its own welfare but the welfare of the fraternal beneficiary system of co-operative insurance.

As we are one of the fraternal insurance orders, young enough to profit by the experiences of others who have made errors, errors that we may avoid by planning well, it behooves us to take no small amount of interest in the outcome of this meeting to be held at Indianapolis.

The whole fraternal field has been benefited by the knowledge of insurance that has been furnished by the Woodmen during the last year. Their best deputies have been sent over the country to explain and discuss the principles of insurance, especially as these principles govern rates or cost.

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Not only the members of the Ladies' Society, not alone members of women's fraternal beneficiary associations, but mankind in general, know too little about the principles of life insurance. A student of insurance has said: "The history of life insurance has taught no lesson with greater emphasis than this, that ignorant or unscrupulous power is dangerous." All power in the Ladies' Society is vested in the membership. The voice of the members, as expressed through their delegates, in convention assembled, is the supreme will. The membership and the membership alone will decide the future of our insurance. True your grand officers have an official responsibility and they must be competent to guide and direct, but they are elected from among our members. There is nothing surer than this, the hope of any society is not in the wisdom of its president nor the justice and purity of the administration of its affairs, so much as in the individual character and the practical education (in regard to the important affairs of the society) of its membership.

Every member has a part in the upbuilding of our organization. Every member is a stockholder in the insurance department of the Ladies' Society. Why should she not study its interests? We, like other fraternal insurance organizations, have "promised to pay"—promised to pay the amount specified in every policy ever written by the Ladies' Society, whether it matured last year, today, or will mature tomorrow or twenty-five years from tomorrow.

If the Ladies' Society promises, in honor, to meet obligations twenty, twenty-five or thirty years hence its members must be sure it will endure, that its foundations are laid deep. There must be no inadequate rates to submerge our whole Society in their readjustment. Neither must our rates be too high. Correct rates for fraternal life protection are based on cost. Since fraternal insurance has become a science it is no longer necessary for one, who will stop and think about it or inquire into it, to guess at what their insurance should cost. Those members who do not understand the basic lines of insurance protection should read them up. Read the history of fraternal life insurance from the day when John J. Upchurch was inspired to found the order of the A. O. U. W. to the present day, note the mistakes that were made and the disasters that followed because of them. You will hear of the National Fraternal Congress whose last session was held in Buffalo; inquire into the nature of its proceedings. See how much you can find out regarding reserve funds, etc. Then sit down and send the information you have thus gained to the Ladies' Department. Never mind the spelling, the composition or the punctuation—just furnish the facts and ideas; 'tis easy to do the rest. Thus will we show to all whom it may concern, that while we are keeping bright the fires of fraternalism, nursing our sick, burying our dead, we are also looking well to our business foundation and that we are basing our insurance on sound insurance principles.

* * *

Poor Risks.

Why should the desire to make a lodge a social success lead those already members to use any influence to have unsafe risks admitted? Scan our death report from month to month. Is not our burden now as great as we should bear? A recent writer on the "Future of Fraternal Beneficiary Societies," says: "A fraternal beneficiary society is the bridge designed to carry, in safety, across the stream of life, protection for the beneficiaries of the members. Do we want the felled tree, the rope hoist, the pontoon or any other temporary makeshift? If the bridge is properly constructed of iron, with rods (rates) sufficient to sustain the burden placed upon them; if its approaches (the doctors) are properly guarded; if the engineer (the management) runs the train at proper speed without too sudden a reversal of the lever, then the bridge will be permanent for all time."

The progressive and advanced fraternal beneficiary societies of today, realizing that the very life of their organization is menaced by poor risks are guarding more and more closely the approaches thereto. In order that their local physicians may be in a position where honest work will not endanger their retention in office, they are placed under the direct control of the head physician who has power to appoint and commission the local physicians, recommended by local lodges, and who alone has power to remove.

The Ladies' Society will obtain the best results if their subordinate lodges elect local examiners who are skilled physicians. Local examiners, too often, "wink the other eye" and recommend the acceptance of an uncertain risk simply because they can not afford to offend the family

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(if he happens to be the family physician) or because the applicant is popular. In either case the society is defrauded again.

Do not complain if some friend is rejected, such cases will occur. Rest assured the Ladies' Society will reject no applicant except for a good cause appearing on the face of her application.

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The Enfranchisement of Women.

It has been said that "organized labor is practically unanimous for 'woman suffrage,'" and the question has been asked "Why has not compulsion from this quarter forced the old parties to grant it?" Organized women have ever found organized workingmen ready to aid them and beyond a reasonable doubt, the request, that women be given the ballot in defense of her rights "to labor and live by the strength of her hands" will receive the earnest attention of every member of a labor organization.

This request, however, must come to them not from the "pink palmed" lady, who by virtue of her enfranchisement, expects to control the destinies of the planets, the earth, of empires, people and races, but from the three million working women. And they, absorbed as they are in what *is*, with little time to ask what *has been, will or may be*, have thus far refused to follow blindly a way that leads they know not whither.

And "those other women," to whom these busy bees in the industrial hive, have a right to look for advice and guidance, women whose paths are more sunny, whose ways are more pleasant and whose burdens are not so great, but whose hearts beat in accord with the bread winners of God's people, they have yet to demonstrate, that they have the courage to lay aside the old prejudice, which after all may be an illusion, and investigate the enfranchisement of women as it will affect all the conditions that surround women in the industrial field.

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Notes.

"My doctrine is to lay aside
Contention, and be satisfied.
Just do your best and praise or blame
That follows that, counts just the same."

Think twice before you speak and then talk to yourself.

The next two years will be what we make them. Let us become very busy.

Don't take refuge in ignorance and say "I'm not 'up' on constitution and by-laws and I know nothing of parliamentary law, but I do know that (this or that) ruling or decision was wrong." Now, sister, pray how do you *know anything* about anything that you don't know anything about.

Did you ever meet a sister who once did a good deed and spent the rest of her life admiring it? I hope you never did.

Are women capable business managers? In ten years the Ladies of the Modern Maccabees handled one million five hundred thousand dollars and lost not one cent.

Pay your dues and assessments. 'Tis better to pay six months in advance than to allow one payment to go by default. Remember *you* forfeit your own fraternal certificate. The organization itself can not forfeit it.

The grasshopper said "I shan't play any more,
You crickets you laughed at my fall.
So off he went, though he wanted to stay,
And the crickets ne'er missed him at all.
In his corner alone he missed all the fun,
The song of the crickets, the scent of the rose.
What a foolish fellow that grasshopper was
To bite off his own little nose.

A sister said "I'll attend lodge no more,
You're selfish, you're mean and untrue,"
Just because all the sisters didn't believe as she did.
They were blessed with opinions, too.
So she stayed away, though she wanted to come,
And the sisters did as they choose;
She missed all the good times and lost all the fun,
This sister who bit off her nose.

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You are to do your duty faithfully and lovingly, first of all to those who are nearest to you, but then remember, that the woman, who in a home thinks only of her own and lives only for them, will inevitably become a drudge, an idler or a toy. No woman can thoroughly order her house, make the wheels of daily life turn without creaking and groaning, adorn her rooms, nay, even design her table, with-

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out being a great deal besides a housekeeper, a housemaid, and a cook. It is not by rolling three or a dozen servants into a mistress, that a "lady of the house" can be manufactured. The habits of reason, the habits of mental order, the chastened and refined love of beauty, above all, that dignified kind of loving care which is never intrusive, never fussy, but yet ever present, calm, bright and sweet, all this does not come without a culture which mere domesticity can never attain. The woman who is to illustrate these, must have learned them by that larger vision, which sees beyond her own parlor windows, and which makes her hands and heart to follow where her eyes have shown her the way.—Bishop Potter.

* * *

The Potency of Faith.

Have you faith in your Order?

If you haven't your conversation will reveal it and your acts will prove it.

Are there important affairs of management that you do not understand? Make intelligent inquiry about them; make your inquiries within the channels of the Order. Do not, at least, seek sources outside until you satisfy yourself that you are not to be accommodated.

Every honestly conducted order will welcome specific inquiry on the part of a member seeking truth. That's the only way the Order can thoroughly fortify itself and expect loyal, enthusiastic support.

Never forget that every truly fraternal order is peculiarly a representative organization, of, for and by its members, and the one thing that distinguishes it from any and all other systems of protection is its publicity of management.

Your usefulness to the Order will depend largely on the firmness of your faith in it—its purpose, plan, management.—Ex.

* * *

Open Parliament.

(8) Is the mover of a motion entitled to the floor immediately after the motion has been stated?

(*Ans.*) She should be given the preference.

(9) A motion was made, seconded and put to vote—the vote was a tie. Was I right in declaring the motion lost?

(*Ans.*) You were. A tie vote defeats a motion, except when the motion is on the question—Shall the decision of the chair stand as the judgment of the lodge?—in which case the chair shall declare the motion carried.

(10) What is the proper motion to close the sessions of a committee?

(*Ans.*) That the committee rise.

(11) Should the mover of a motion to form a committee be appointed its chairman?

(*Ans.*) Not necessarily, but if she is one of those best fitted that courtesy should be extended to her. She should, at least, be chosen upon the committee if in the judgment of the assembly or presiding officer she is the proper person to act thereon.

(12) May a member withdraw a motion after it has been stated by the chair?

(*Ans.*) She may, by unanimous consent, if it has not been amended or acted upon in any way. She must address the chair and say "I withdraw my motion *with the consent of the second.*" If one person objects to its withdrawal, the motion can not be withdrawn and is still before the assembly.

(13) At a meeting not long ago I thoughtlessly passed between the president and a member who was speaking. I was reprimanded by the president and have never been to lodge since. Will you kindly tell me if I committed an "unpardonable sin?"

(*Ans.*) Not by the discourtesy, so thoughtlessly shown, but by staying away from lodge—almost. A member should avoid passing between the president and a member who has the floor, but your president was certainly lacking in tact when she noticed so slight a breach of etiquette.

[You write and compose nicely, Sister. I have been wanting to hear from your lodge for some time. Please attend lodge, become familiar with what is being done and write me a letter for publication in the Ladies' Department. I thank you for your kind words of appreciation.—Ed.]

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Letters from Friends

FROM L. S. 67—(*Mrs. Charles Pulford, Milwaukee.*) Morning Star Lodge is very much alive. Organized nearly four years ago by Sister Kate Bradly, of Chicago, with twenty charter members, we now have a membership of thirty-three.

To celebrate our fourth anniversary, January 4th, we will unite with the brothers of Lodge 130 in having a royal good time.

Two years ago we had the honor of having with us our worthy Grand President and our Grand Counselor, Sister and Bro. Sargent, and we sincerely hope that in the near future we may have the pleasure of entertaining them again.

We received an invitation from Badger Lodge 28 to meet with them on December 11th, their first anniversary, and enjoy a social afternoon. It was our regular meeting day and having a candidate to initiate we held a short meeting, giving our "goat" a good exercising (at least Sister Wissing thought so). We then went in a body to Fraternity Hall, where a warm welcome awaited us. We were right royally entertained with some very interesting games. As usual, our Sister Lorimer won first prize. After the games we were told to choose our partners for supper; each member of Morning Star Lodge was most courteously escorted by a member of Badger Lodge to the dining room, where a most delicious luncheon was served. At the conclusion of the luncheon we were willing to acknowledge that Badger Lodge was the "best ever."

We hope that it will be our privilege and our pleasure, in the near future, to entertain Badger Lodge in return.

Let us be more neighborly and visit each other more frequently; by so doing we will be much benefited, I am sure.

Brothers, just one word to you who have wives, sisters and mothers. Encourage them to join our Society. By so doing you will help along the cause of Friendship and Charity.

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FROM L. S. 161—(*Sister F. Wanless, Toronto Junction.*) Maple Leaf Lodge, organized April 23, 1902, by Sister Ball, of Stratford, with a membership of thirteen, is progressing favorably. Five members have been added, and we expect more to join soon.

In August we held a picnic at High Park and B. of L. F. 262 rendered valuable service in making it a grand success. A number of the brothers from Lodge 569, East Toronto, availed themselves of our invitation, and a very enjoyable time was spent.

We had a very pleasant time at a picnic given at Victoria Park by the B. of L. F. 596 later in the season. We hope to see a Ladies' Society organized in connection with that lodge in the near future.

In November we gave an afternoon tea for the members at the home of Sister Quinn. The tea table was very dainty with its graceful adornments of beautiful white chrysanthemums, and nothing was left undone that could add to the enjoyment of the pleasant affair. The husbands of the ladies accepted the invitation to spend the evening with them and it passed away quickly with music and games. It was pronounced an unqualified success by all.

The Queen City B. of L. F. 262 and the Ladies' Society are to hold their first joint meeting January 23, 1903.

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FROM L. S. 90—(*Mrs. H. F. Sheble, Kansas City, Kan.*) It has been some time since I have noticed an article from No. 90, but I assure you, sisters, we are not asleep but have been up and doing, as the work for the past few months will show, and the only regret we have is that during the past year we have had to part with a number of our sisters who have taken their abode in other localities, among them Sisters Coffee, Nevins and Williams.

On October 2d a pleasant surprise was given Bro. and Sister Coffee at their home, between thirty and forty participating. A delicious oyster supper was served, after which we departed, wishing Bro. and Sister Coffee success and many friends in their new home in California.

On November 6th a surprise and housewarming was given Bro. Frank Good at his new residence on South Seventh street. We hope that we left a good impression and that when there is a Mrs. Frank Good she will be among our members.

On November 11th a dime social was given at the home of Sister Buchanan. "B" being the initial of the ladies to entertain, it fell to the lot of our Worthy President, Sister Buford, Sister Blodgett and Sister Buchanan, and they certainly

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did their part well. Considering that it was the first social of its kind, it was a success socially as well as financially. The menu was a jewel.

On December 22d Bro. Mayer gave a splendid entertainment consisting of a lecture, illustrated songs and stereopticon views, for the benefit of the Society, which could not be otherwise than a success, when given by one who is so thoroughly interested in our organization.

On November 7th we hope to celebrate the fifth anniversary of our Society, and we can certainly look back with pride upon its growth from sixteen charter members to more than forty. And now as we are entering the new year may I wish our editor and all the L. S. of the B. of L. F. unbounded success. When another year has passed away we may look back over its work with pleasure.

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FROM L. S. 145—(*Mrs. Clara A. Weare, Woodsville, N. H.*) Our Society was organized in June, 1901, with seven charter members. At first we held our meetings at the home of one of our members. Now we have thirteen members in good standing and have held our meetings, since last spring, in a hall hired for the purpose. One of our members recently moved to Del Nort, Col., another is attending school in Boston, while a third member lives out of town, so we have only a few working members. We have worked hard and faithfully and have accomplished wonders considering the size of the lodge. We have furnished the supper for the B. of L. F. ball for two years. We have held a joint meeting with the Brotherhood, and when they took in several candidates, served a supper for them. We also gave a reception in honor of the sister and brother who went West.

In October our Vice-President was married to a worthy member of the Brotherhood, and on Christmas day our President was married to a popular young man of Wells River, Vt.

No deaths have occurred and we have lost only two members by withdrawals. Best of all, everything has been in perfect peace and harmony. I hope all the lodges will contribute to the Magazine, as I think an exchange of ideas will be helpful to all.

♣ ♣ ♣

FROM L. S. 70—(*Member, Buffalo, N. Y.*) As we enter the new year let us not forget to include in our good resolutions, thoughts of the obligation we have taken in the Ladies' Society. Pause and think what it means to us and to our families in many ways. It takes but little of our time and attention to do all that is required of us. There will be plenty of opportunity for other things that come into our daily life. Let us not in selfishness be forgetful of what we owe others.

December 16th was the sixth anniversary of our lodge. We gave a supper to our members. All present enjoyed a pleasant time.

The closing event of Holly Lodge for the past year was a card party and social, given December 18th by the drill corps. Judging from the large attendance and receipts we can but feel that the drill corps is fast gaining a favorable position among friends of the Society and the members of the Brotherhood.

We wish those earnest workers success in every future effort.

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FROM L. S. 49—(*President; Minneapolis.*) Twilight Lodge 49 has initiated five new members since October 1st.

From our Christmas sale we netted a neat sum for our treasury notwithstanding it was a very stormy night.

I had the pleasure of organizing Loyal Lodge 161. They started out nicely with twenty-one charter members, as nice a lot of ladies as I ever met. Their officers seem to take the right view of their duties and perform them in a business-like way. I see no reason why they should not be successful. I wish all A Happy New Year.

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FROM L. S. 116—(*Baltimore, Md.*) How very encouraging the beautiful letter from Third Vice Grand Master Charles W. Maier. When our dear brothers read it I know they will resolve to do more toward having their wives, daughters and sisters join us.

In the December issue of the Magazine one of the good brothers of Lodge 214 urges the members of his own lodge to be more energetic in the good cause. He repeats the motto "United we stand, divided we fall." This also applies to us, so we shall look to our brothers to help us more in the future.

Many more sisters would join us had they first a little word of encouragement from the brothers in their families. I feel sure that few of the brothers have given the Ladies' Society serious thought, but with such a letter from Mr. Maier,

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who seems to have at heart the interests of our Society, they can not fail to realize what a great help our Society can be to them. We hope with the beginning of the new year the brothers of Lodge 214 will use their influence in getting the members of their own families to join us.

♣ ♣ ♣

FROM L. S. 165—(*Member, Commerce, Tex.*) Reindeer Lodge is in fine shape for a small society. We have fine meetings well attended by all.

Our joint meetings are almost a thing of the past, the rush of business has interfered with them during the last three months. However, we look forward with pleasure to the summer.

Congratulations are extended to Bro. Patterson; he has won a fine lady for a life companion. We hope her name will soon appear on our roll of membership.

We are sorry that the brothers of McKinley Lodge 422 have not encouraged their wives, sisters and mothers to organize a Ladies' Society. Wake up, brothers; you don't know what you are missing.

♣ ♣ ♣

FROM L. S. 36—(*A Member, Sayre, Pa.*) Autumn Leaf Lodge has a membership of fifty-three with four or five candidates to be balloted upon.

We are working hard to get new members, each and all of us trying to do our part, and trying to give encouragement.

I am sure we will prosper as long as Sisters Templeton, Smith, Repp and Lime are with us.

The next thing I would like to see is a joint meeting. Other lodges hold joint meetings, why not we; I am sure the B. of L. F. boys would appreciate and enjoy them. I wish all A Happy New Year and success in all they undertake in the name of Friendship and Charity.

♣ ♣ ♣

FROM L. S. 77—(*One who was there, Peru, Ind.*) Two years have passed and "unlucky 77" is still alive—not only alive but moving.

We gave a ball February 3d which was a decided success and demonstrated that our ladies are pleasant and sociable. Our brothers are always willing to lend a helping hand when needed. They ably assisted us.

The orchestra platform was tastefully decorated with palms and bunting, the music was pleasing and the grand march led by Mr. and Mrs. E. Carray was a beautiful sight.

Miss Hazel Bradbury and Miss Maime Klaran distributed the programs.

Official

Death Report.

JENNIE ESQUIVEA—Lodge 140; died September 5, 1902; cause not given. Amount of insurance, $200.

JENNIE LOGSDON—Lodge 50; died January 6, 1903; cause not given. Amount of insurance, $200.

MAGGIE PHILLIPS—Lodge 47; died January 12, 1903; cause, pulmonary tuberculosis. Amount of insurance, $200.

MARY A. REED—Lodge 118; died January 13, 1903; cause, pneumonia. Amount of insurance, $200.

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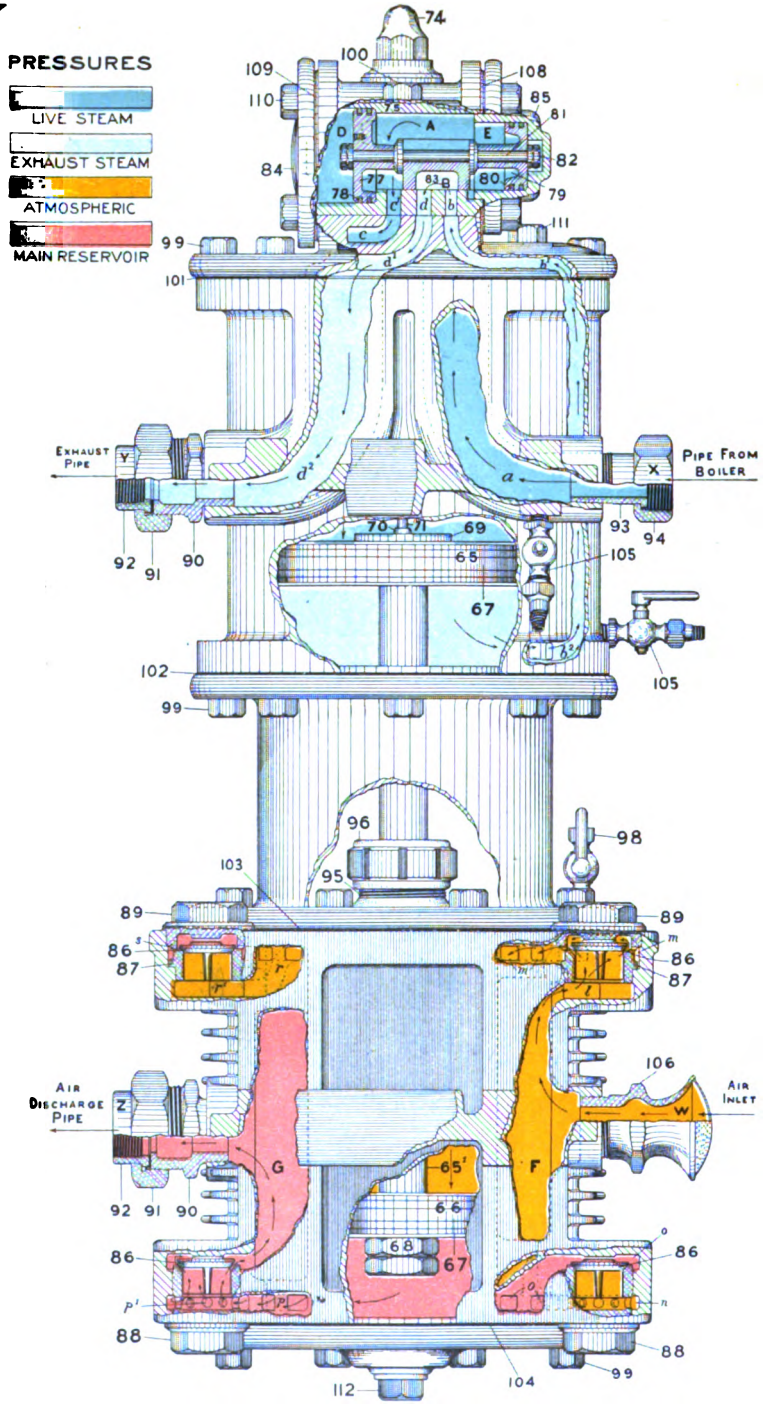
Good-By

"Farewell! Farewell!" is often heard
From the lips of those who part;
'Tis a whispered tone, 'tis a gentle word,
But it springs not from the heart.
It may serve for the lover's lay,
To be sung 'neath a summer sky;
But give to me the lips that say
The honest words, "Good-by!"

"Adieu! Adieu" may greet the ear
In the guise of courtly speech;
But when we leave the kind and dear,
'Tis not what the soul would teach,
Whene'er we grasp the hands of those
We would have forever nigh,
The flame of friendship burns and glows
In the warm, frank words, "Good-by!"
—Eliza Cook, in Good Form Magazine.

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Locomotive Firemen's Magazine Educational Charts.

WESTINGHOUSE AIR BRAKE SERIES.

PLATE IV—NINE AND ONE-HALF INCH PUMP (Back View.)

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BROTHERHOOD OF
LOCOMOTIVE FIREMEN'S MAGAZINE
W. S. CARTER
EDITOR & MANAGER

Vol. 34, No. 4.

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INDIANAPOLIS, IND.
April, 1903.

Plate IV—Nine-and-One-half-Inch Pump (Back View).

PLATE IV of the Westinghouse Series of the Locomotive Firemen's Magazine Educational Charts is a sectional and perspective view of the back of a 9½-inch air pump. The pistons have traveled about three-fourths of their downward stroke.

The steam from boiler enters at *X*, passing upward through passage *a* and entering chamber *A* at a^2. The upper portion of passage *a* and port a^2 is not shown here, having been removed in order to show the differential valve, slide valve *83*, and ports c^1, *d*, and *b* in detail.

When the differential valve is in the position shown, steam from chamber *A* passes down into the upper end of the steam cylinder through port c^1 and passage *c*. The point of entrance of this passage into the cylinder is not shown here, as it lies beyond exhaust passage d^1. The steam is shown, however, in the upper end of the steam cylinder, above piston *65*.

The unique feature of this drawing is the graphic manner in which the passage of exhaust steam from the lower end of the steam cylinder is shown. The steam in exhausting from the lower end of the steam cylinder passes out through ports b^2 and upward, beyond passage *a*, through b^1 and *b* into the cavity under the slide valve *83*, thence downward through *d*, d^1 and d^2, out through exhaust pipe at *Y*.

The air piston in passing downward creates a partial vacuum in the upper end of the air cylinder, causing the air to enter through the intake *W* into the passage *F*, thence upward through passage *l* and out under the valve *86*, into passage *m*, thence into the upper end of the cylinder, as shown above piston *66*. It will be noted that atmospheric pressure also extends downward through passage *F* and into passage *n*, under lower intake valve *86*. A portion of passage *F* has been removed in order to show passage *O*. It will also be noted that atmospheric pressure is shown in passage *r*, r^1, under the upper discharge valve *86*.

The downward stroke of piston *66* has compressed the air in the lower end of the cylinder, which is passing out into passage p^1 through ports *p*. The pressure has lifted the lower discharge valve *86* from its seat and the compressed air is passing upward into passage *G* and out through the discharge pipe at *Z*, into the main reservoir. It will be noted that the compressed air also passes into passage *O* and presses the lower intake valve *86* down on its seat. It will also be noticed that the compressed air fills the upper portion of passage *G*, and presses upper discharge valve *86* down on its seat. A part of passage *G* has been removed in order to show passage r^1 and ports *r*.

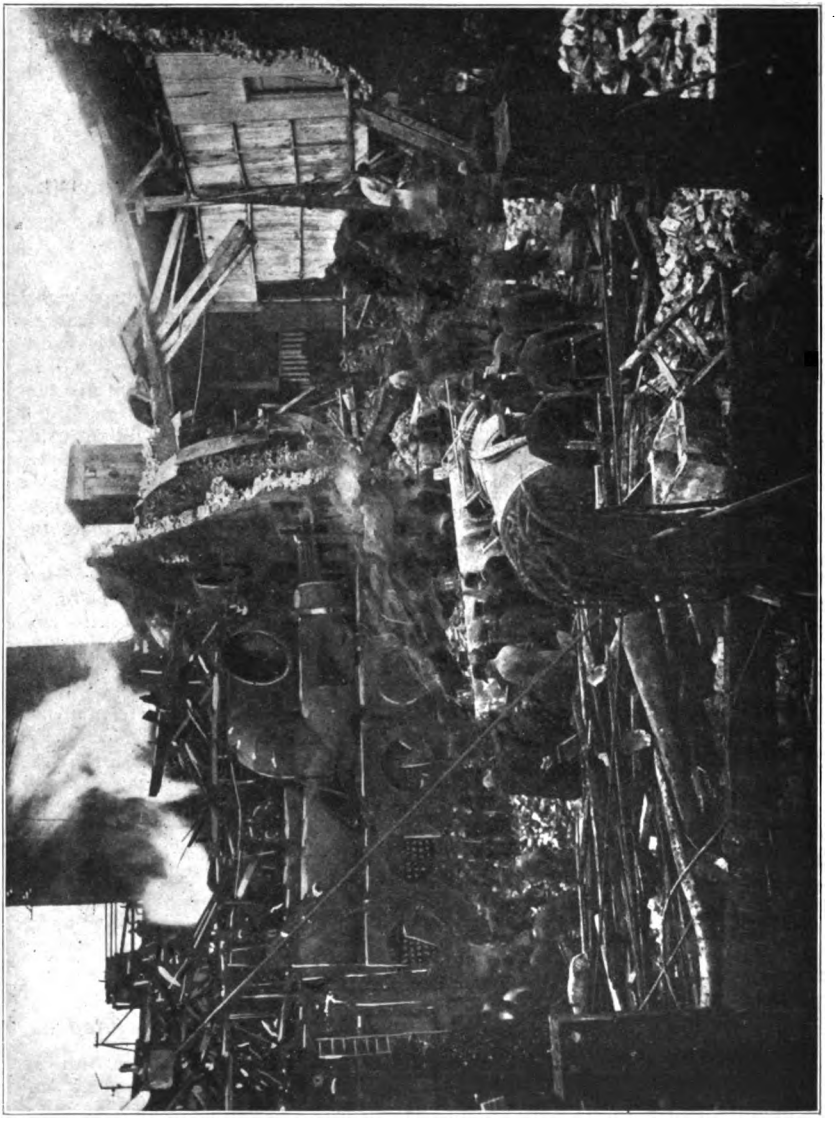
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Rules Meant to be Violated.

It complicates matters when railway officials promulgate rules by which employes are to be guided, except that under certain conditions the rules are to be violated. Some years ago bulletins were posted by many officials forbidding the use of the air brake in emergency position when no emergency demanded it. What constituted an "emergency" was

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not defined in the bulletin. Flat spots on drivers continued to show up. Soft metal plugs were then inserted in the side of the brake valve, and more bulletins posted, which informed the engineers that if they used the emergency unnecessarily the plug would be broken off, and this would be evidence against them, and they would be punished for the offense. The plugs did the business. When an engineer *thought* he was about to get into something he refused to use his emergency, and thereby break the plug, until he *knew* he was going to hit. Then to excuse himself for using the emergency he had a broken pilot to show.



THE BOILER ROOM OF THE SWIFT PLANT AFTER THE EXPLOSION

Some years ago, when the practice of placing brakes on drivers was instituted, some motive power officials issued bulletins forbidding the running of locomotives with the driver brakes cut in, because their use caused flat spots. An ex-

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ception to the rule was when the engineer *believed* that the driver brakes were essential to safety. Regardless of the excuses of the engineer, or what he said he "believed," a flat spot called for a reprimand or suspension, and the official cited the bulletin forbidding the running of locomotives with driver brakes cut in.

Where double-headers are now run, rules are in force which make it obligatory for the man on the second engine to keep his brake valve cut out, the man on the head engine doing the braking. The only exception to the rule is when the first engineer calls upon the second engineer to use his brake valve. Where accidents have occurred because of a failure of the first engineer to stop the train the blame is also thrown upon the second engineer, *because he did not violate the rule*, and cut in his brake valve.

Recently the following incident occurred on a well-known western road: A double-header train was descending a long grade on which they had an order to slow up for a passing track, as there was a disabled engine on the main line. The head man was in charge of the brakes and the second man was following the established rule of keeping his brake valve cut out. After passing the mile board the second man saw that the train was not being slowed down as it should be, called to the head man with his whistle to apply his brakes, and then called to the train crew to apply brakes. The stop was made too late and an accident occurred. The second engineer was discharged for not cutting in his brake valve. The information at hand leads to the belief that the head man had already fully applied his brake, thereby exhausting all of the air from the train line.

This peculiar case was referred to three air-brake experts, who had no information as to where the accident happened, and the following answers were received from two of them:

Expert No. 1.—"A standard set of rules to be observed in double-heading has not yet been adopted generally, and only a few roads have equipped their engines for double-heading safely, but they continue to do it just the same. The one rule that is generally enforced is that the leading engineer shall 'cut in' and operate the air brakes; the second engineer to cut his brake valve out from any connection, whatever, with the train line before leaving the original terminal—thenceforth not to cut in again. And if I could prove that an engineer, while running over the road with the second engine, double-heading, had cut his brake valve in to connection with the main train line while his valve was in the "*running*" or "*release*" *positions*, without being notified by the leading engineer to do so, I would discharge him, if I had authority to do so. The action has a releasing effect—or it may prevent the other engineer being able to apply the brakes. It is a dangerous action.

"In case of danger, it is understood by all practical railroad men, that if the train must be stopped immediately, any train or engineman is free to, and expected to, use any means whatever to stop it, and if that means to get the air brakes applied he must get the air out of the train pipe by the quickest way, therefore:

"If the second engineer is properly cut out and becomes aware of danger that requires the train to be stopped, and the leading engineer does not see the danger, and the second engineer can not get the leading engineer to understand or observe his signal to stop, it is the duty of the second engineer to throw his brake valve into emergency and *then* open his cut-out cock to the train line and leave it open until train is stopped.

"It would be my ruling, on this road, that in a case as described in the attached letter, the second engineer had done all that he is required to do, *when he felt the brakes being applied from the head engine*. Responsibility thenceforth rested upon the leading engineer.

"If the second engineer was certain that the leading engineer had applied the brakes with *full force*, there was nothing further that he could have done. He could not, however, be positive as to that, as his gauge was also cut out from the main train line and he could only guess from the way the brakes were holding as to whether they were full-on or not. If he judged they were not—it hinges on his own statement—he should have completed the application as before described. But I could not hold that the second man was in any sense at all negligent in the matter."

Expert No. 2.—"Although this communication does not state specifically that the leading engineer was controlling the speed of the train down the grade with the air brake, yet I reason that he was; else, as stated further on in the statement, the second engineer would not call to him for brakes first, and afterward call to the train crew for brakes, when he could just as well call to them for brakes at first had they been in control with the hand brakes.

"Assuming, therefore, that the leading engineer was controlling the speed of the train down the grade with the air brake, the second, or following, engineer should not interfere by cutting in his brake valve unless there was danger of accident, or, in other words, an emergency which required the train to be stopped, when he should, by all means, cut in his brake valve, placing the brake valve handle at emergency position. By so doing, the second engineer has the condition of affairs revealed to him at once; that is, he can

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tell instantly whether there is any air in the train pipe or not. If, upon cutting in the brake valve on the second engine and placing the valve in emergency position, no air blows out at the brake valve, the engineer then knows that the train pipe pressure has been exhausted and if the brakes are not then holding as they should, resort must then be had to the hand brakes, the reverse lever and sand to effect a stop. Whether all or a part of these stopping devices are to be used depends upon how urgent is the necessity for the stop.

"In case of double-heading, cutting in the brake valve on the second engine will have an effect upon the operation of the brakes depending upon conditions as follows: First, if brakes are all released and train pipe is charged to standard pressure, cutting in the brake valve on the second engine with handle in running position or full release would prevent the leading engineer from applying the brakes in the service application, but not in emergency; second, if the leading engineer has the brakes applied either with a full or a partial application, and the second engineer cuts in his brake valve while the brakes are so applied, leaving the handle of his valve in either the running or full release position, the effect of cutting in the valve would be to release the brakes. If before cutting in his brake valve, he moved the brake valve handle to the service or emergency position, the effect upon the brakes would be, if they were partially applied by the leading engineer, to set them harder, or fully apply them, while if they were already fully applied, cutting in the brake valve on the second engine and placing the handle of the valve in emergency or service position would not affect the brakes in any way.

"Under the conditions cited in the communication, in my judgment, the man on the second engine, after passing the mile board, then calling for brakes to the leading engineer and not getting them, should have cut in his brake valve and assumed control of the brakes himself, and should not have called to the train crew to stop the train until after he had done this, unless there was urgent necessity for stopping and he found that the air had already been exhausted from the train pipe.



PORTIONS OF THE SWIFT EXPLODED BOILER

"It is always rulable for the engineer on the second engine to cut in his brake valve, when, in his judgment, it is necessary to operate the brakes to avoid disaster, or when he has an emergency of which the leading engineer may be ignorant, but not otherwise, unless requested to do so by the leading engineer.

"On long down grades the leading engineer on a double-header might, by unskillful handling of the brakes, fritter the air away so that when the second engineer cut in his brake valve to assume control of the brakes, he would be powerless to aid in stopping, except by calling to the train crew for hand brakes, and by the use of his reverse lever."

Here is another case of divided responsibility. If the first engineer did not have his brakes fully applied, the second man is guilty of neglect in not cutting in

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his brake valve—and yet it is evident that he was doing what he thought was best, for he was calling for brakes—and he had a dread of violating a rule that forbid him running with his brake valve cut in. Would it not be well for railroad officials where double-heading is practiced to post bulletins instructing engineers on second engines to run with brake valves cut out and to place brake valve handles in emergency position, and to use the cut-out cock in the same manner and under the same circumstances that a conductor would use his valve to stop a train? This would at least give authority to the second man to violate the rule to not cut in, and just when to violate it.

* * *

Two Men in Cab.

Hardly a month passes that something does not occur to an engineer in a double-cab locomotive that might or does result in disaster. The Jersey Central wreck, being so destructive to life and property, has attracted attention to the necessity of some provisions being made to protect the head-end of a train when the engineer becomes disabled, and the fireman is back in his cab, where he can not know what has happened.

Last month an account was published of an engineer being killed in his cab in Tennessee and the train ran eight miles before the fireman noticed that something was wrong. The following is from the Newark, Ohio, Tribune, of February 28th:

Engineer John Smith, of Dennison, one of the oldest passenger engineers on the Panhandle, was found dead in the cab of his engine, with his hand on the throttle, while the train was running at a rapid rate of speed, west of Newark, early this morning. The unfortunate man was running an engine on the second section of Panhandle Train No. 5, which left Newark this morning about 1 o'clock for the west. All trains have very slow orders for the temporary trestle at Big Walnut, but when No. 5 was nearly to the bridge, the fireman, whose name could not be learned, noticed that the engineer did not slow up as he should have done. The fireman crept around the end of the immense boiler to the seat where the engineer sits with his hand on the throttle that controls the action of the iron monster, and there found the lifeless form of Smith, with his head hanging out of the window. The fireman, with rare presence of mind, stopped the train just as it was running on the bridge, and then notified the conductor of his horrible find.

The fireman took the train on into Columbus with but little delay. It is not known if Smith was hit by a mail crane or if his death was caused by heart trouble. His remains were taken to Columbus and prepared for burial.

Engineer Smith's cap was found near Summit, a number of miles east of where the train was stopped, and it is supposed he was dead when he passed that village.

In several States bills have been introduced which require railway companies operating double-cab engines to employ a second man in the cab with the engineer. These legislative measures have been advocated by the public and train employes, except the engineers, who, with the railway companies oppose the adoption of the law. In some instances others than engineers have been employed by the companies to travel to distant States to lobby against the bills.

The New York Times, of February 19th, says, in a special report from the capital of that State:

A large delegation of locomotive engineers appeared today before the Assembly Committee on Railroads to oppose the bill introduced by Assemblyman Finnegan requiring an assistant to the engineer and fireman in the cabs of locomotives. The measure was also opposed by W. S. Rudd, counsel for the New York Central Railroad.

M. Flannery and John Mack, who run the fastest trains on the New York Central, told the committee that they would consider the extra man in the cab as a danger rather than a safeguard. His presence there, they declared, would distract the engineer, because, having nothing to do, he would be inclined to talk. They said that they never knew of a railroad accident which could have been prevented by the presence of a third man in the cab.

A. W. Young, chairman of the Executive Committee of the State Legislative Board of the Brotherhood of Locomotive Engineers, said: "Put another man in the cab, and it would distract my attention. I don't want any man to speak to me when I am running a train. The other man would be asking me for a match at a critical moment."

Some of those who are advocating the bill, and who were surprised by the antagonism of the engineers, offered the explanation that the engineers do not want a third man in the cab who would have nothing to do but to acquire the knowledge necessary for the running of an engine.

The Indianapolis News publishes the following, descriptive of how the bills were opposed before the Indiana Legislature:

A dozen or more railroad engineers and firemen were before the Senate Committee on Railroads before the opening of today's session, in opposition to Representative Van Fleet's bill, providing for two enginemen in all double-cab engines.

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The men were mostly from Ohio and Pennsylvania, and they admitted that they were here on orders of their roads, though they said that they did not know the object of their business until they arrived here, and were met at English's Hotel by W. O. Johnson, attorney for the Erie.

The gist of their objection to the bill was that a second engineman, which by the definition means a second engineer, would divide the responsibility and thereby lessen the vigilance now exercised by the one enginneer.

A. B. Chapman, of Toledo, a Lake Shore engineer of twenty-six years' experience, was the spokesman for the group. He expressed the fear that one result of the proposed law would be to lessen engineers' wages, as an unnecessary man would be added to the pay roll. He argued that a second engineman would be in the way. He said he did not know of any wrecks that could possibly have been prevented by a second engineman.

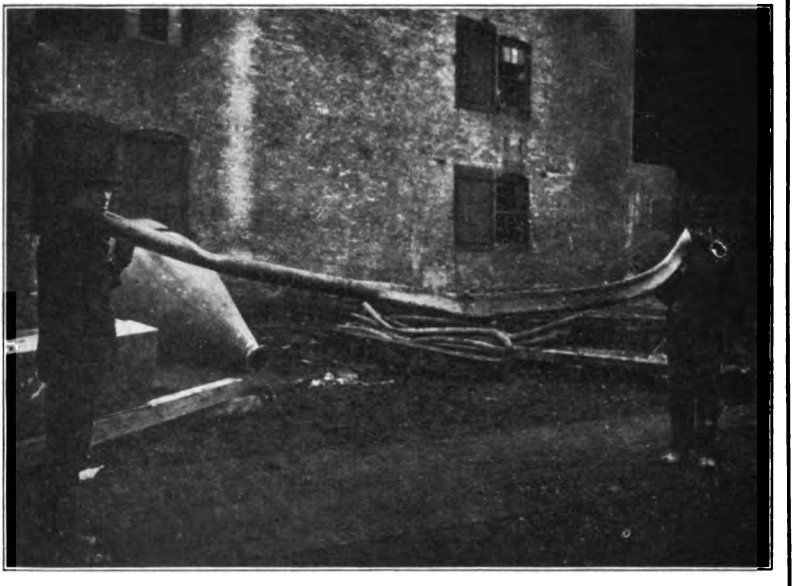
W. P. Friesner, of Huntington, chairman of the State Legislative Board of the Brotherhood of Locomotive Firemen, and George Diveley, of this city, chairman of the State Legislative Board of the Brotherhood of Railway Trainmen, spoke for the bill.

With the visiting delegation were several master mechanics. The members of the delegation were much opposed to having their names published: Among them were Charles Cascaden, Meadville, Penn., Erie road; J. Rhoades, Erie road; C. Sweetman, Erie road; F. Steele, Erie road: E. Smith, Baltimore & Ohio road, and A. B. Chapman, Lake Shore road.

There was a lobby of railroad lawyers on hand to defeat the bill if possible. Among them were E. C. Field, of the Monon; Daniel Simms, of the Wabash; Smiley Chambers and L. P. Newby, of the Pennsylvania, and Frank Littleton, of the Big Four; John B. Cockrum, of the Lake Erie; John Beasley, of the Evansville & Terre Haute, and N. D. Daughman, of the Nickel-Plate.

Secretary William M. Blythe, of the local Brotherhood of Locomotive Engineers, has received the following telegram from P. M. Arthur, grand chief of the B. of L. E.:

"Please have legislative board do all they can to secure the passage of bill now before the House, which, I believe, is No. 68."



THE SWIFT BOILER EXPLOSION

One of the tubes from the exploded boiler, some of which were found on the tops of buildings and in yards three blocks away

It is said that the names given by these opposing railroad employes in some instances were assumed; that the "E. Smith" of the B. & O. is a member of the B. L. F., who was brought all the way from Baltimore, Md., to appear against the Indiana bill, and his name is not exactly "Smith." If these reports are true it will be evident that railway men can "scab" on each other even when there is no strike.

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The argument of the engineers against the bills in the several States is that two men in a double-cab engine will do more harm than good; that the second man will "talk to the engineer and take his attention from his business." If this is a good argument, then all engines should have double cabs, so that the fireman can not talk to the engineer. When we remember that on at least 90 per cent. of the locomotives in use today there is always two men in the cab, and on most freight engines three men, counting the head brakeman, it will be seen how silly is the argument of those engineers who oppose this law. Probably the true reasons for the opposition of the engineers is that they fear that the third man on an engine may affect their wages in some manner.

Engineers should not fear a reduction of wages because of the presence of another man on the engine any more than the conductor should when a flagman is added to the crew at the back end of the train. Firemen favor this law for the same reason that they favored the "Safety Appliance" law. They desire to save their own and their fellow workmen's lives from the unnecessary dangers of railroading—and their knowledge that engineers habitually "nap" when engines are doubling the road makes them desire that two men be placed in the front cab of a two-cab engine.

The Cranford Wreck.

So much has been said about the disastrous wreck on the Jersey Central that the finding of the coroner's jury will be of more than usual interest, and is therefore published, as follows:

From the evidence brought out at the inquest, we believe that this collision was caused by the failure of the engineer, James H. Davis, of engine No. 27, J. C. R. R., operated by the Philadelphia & Reading Railroad, drawing train No. 621, to observe the following signals displayed to warn him of approaching danger:

1. The red lamp set on the ground at Cranford, which notified him to stop for orders.

2. The distance or cautionary block-signal, a green light just west of the Westfield station, which gave warning that the block ahead was occupied.

3. A red lantern swung back and forth across the track by the flagman at the Broad street crossing, Westfield, 374 feet from the last mentioned block-signal.

4. A red lantern swung by the rear brakeman of train No. 13 (this man claims that he was within about thirty yards of the road crossing when the train No. 621 passed him); and, finally, the home block-signal, showing red and green lights, which indicated that he must come to a full stop, as the track ahead was occupied. This signal is located 2,136 feet from the warning signal. Although, from the evidence, we can not find that the railroad company, or any of the officials, can be held criminally responsible, there are certain mitigating circumstances in regard to the action of the engineer which should be taken into consideration. The said James N. Davis, who has since died from injuries received in this accident, was 34 years old, in the best of health, and was one of the most experienced and valued engineers on the road.

On the run from Philadelphia in the morning with train No. 614, his own engine, No. 321, became disabled and he was obliged to leave it at Trenton Junction and take engine No. 27 from a local milk train, to bring his train to Jersey City. Although this engine appears to have been in good condition on January 27, 1903, an examination of the work books of the company shows that it was in the shop between January 7 and 17, 1903, for the repair of a crack in the steam chest and various minor repairs. That after leaving the shop the engine was reported for repairs to piston packing, etc., several times, and, although there is no report against the engine in regard to leaking steam after January 24th, there is no doubt that there was an unusual amount of steam escaping from some part of the engine during the run from Jersey City to Westfield the night of the accident. This escaping steam, the engineer claims in his ante-mortem statement, obscured his vision so that he could not see the signals without shutting off steam. As the air was heavy, this steam settling around the engine, was probably the cause of his not seeing the train order signal at Cranford, consisting of a red lantern placed on the ground, thus failing to receive the warning from the train dispatcher that train No. 13 was on the track ahead.

Engineer Davis states that, finding it necessary for him to get at the injector, he missed a signal. This was probably the cautionary signal before referred to just west of the Westfield station, and, as it has been shown by actual experiment, that, at the rate of speed he was going at the time, it would only take forty seconds after passing Westfield to strike the rear of train No. 13.

The time-table shows that, as a usual thing, he would have a clear track, with nothing ahead, from Cranford Junction to Plainfield, but, owing to a stalled train on track No. 4, the Easton train, No. 13, had been ordered to run ahead of No. 621 on track No. 2. Engineer Davis, failing to receive his order at Cranford, did not know that this train was ahead; and, unfortunately, train No. 13 had a hot journal on the tender which, in the judgment of the engineer, required his

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attention, and caused him to make an unusual stop a short distance west of the Westfield station, where the accident happened.

We make this lengthy explanation to show that, although the engineer, James N. Davis, with his great responsibility in caring for the lives under his charge, failed in his duty in not keeping a lookout for the signals, the instances above narrated were against him; namely, the escaping steam, train No. 13 on an unusual track and an accident to train No. 13 which caused it to make an unusual stop.

The fire which occurred immediately after the collision and added greatly to the horrors of the wreck, was probably caused by the explosion of the headlight and burning gases escaping from the tubes of the engine when the smoke-box was broken in. However, there are two stoves in each of the two wrecked cars, which probably increased the rapidity of the conflagration.

Our investigation shows that this division of the Central Railroad Company of New Jersey, between Jersey City and Bound Brook, is equipped with the electric, pneumatic, automatic block system, which is operated automatically by the movement of trains over the track; the signals are placed on posts which display arms of the semaphore type by day and lights by night, and this system is said to be one of the best installed on any railroad.

The Central Railroad Company of New Jersey and the other large trunk lines have probably reached the limit in providing the best possible system for the running of trains by visual signals, but they have not yet succeeded in reaching a point to cover human fallibility at critical moments.

After a thorough examination, we believe the Philadelphia & Reading Railroad Company, and the Central Railroad of New Jersey to be free from any criminal responsibility for the accident above referred to.

We have carefully considered measures that should be taken to guard against the repetition of accidents of this kind, and would suggest close study of the following questions:

Is the traffic of this railroad greater than can be safely handled, considering the very large amount of high speed service required; if so, what is the remedy?

Should not all stoves be prohibited, and all passenger cars be heated by steam from the locomotive?

Should not the headlights on engines be electric or something safer than a lamp containing a large quantity of oil, which, in cases of accident, is liable to cause fire?

Should railroads be required to provide another man in the cab, whose sole duty it would be to look out for signals?

Should not a stricter observance of the rules relating to signals be insisted upon by the railroad officials, this especially in regard to distance or green signals?

While there is no evidence before us



THE SWIFT BOILER EXPLOSION

Thirty feet of the Steam Drum, which was blown through the store room and fell three hundred feet from the boiler room

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that these signals are not regularly observed on the railroads concerned in this collision, there is a general feeling that a laxity prevails in this matter all over the country.

Should not the railroads adopt, in connection with their automatic visual signals, some one of the automatic safety devices that are now in the market, which actually shut off the steam, apply the brakes and stop the train if the train is blocked or out of order?

To arrive at a correct decision in these matters, which require a great deal of serious and expert study, we would suggest that the Legislature of the State of New Jersey, now in session, pass a bill providing for a State Railroad Commission, to be appointed by the Governor, composed mainly of disinterested experts or practical railroad men, who shall investigate the above questions, and others of equal importance which may be brought to their attention.

This commission should have the power to enforce such rulings and to require the adoption of such devices as will add to the safety and comfort of the large traveling public throughout this State.

We would call attention to the fact that statistics show that in Great Britain, where trains are run equally as fast and where the traffic is much more crowded, but where trains are operated strictly on the block system, not a single passenger lost his life during the year 1901, while in this country, where many roads are still without block signals, there were, during the three months ending October 1, 1902, 1,434 collisions, in which 148 persons were killed.

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Mysterious Boiler Explosions.

When a boiler explodes the proprietor or supervising official nearly always assigns "low water" as the cause of the explosion. This is an easy way out of an annoying situation, and it is so much easier to place the responsibility upon the dead engineer than to attempt to offer any other explanation. Not many months ago a locomotive on a certain Western road "dropped her crown sheet," and, following the ancient custom, the master mechanic discharged the engineer for "burning his engine." Friends of the engineer secured the services of an expert boiler inspector from Chicago, who submitted the following report, after a thorough inspection of the exploded boiler:

"I found the said crown sheet to be down about six inches, about twenty-four inches from the flue sheet, this being about the center of the bulge in the crown sheet. The said bulge extended over to within ten inches of each side of the fire-box. I also found that the radial stays were broken off close to the crown sheet inside, and heads blown or pulled out of the holes. I examined the said sheet very carefully and had Mr. ———, foreman boilermaker of the ——— shops at ———, and Mr. ———, general foreman of the ——— shops, in the fire-box with me when I made the examination.

"We cleaned the crown sheet off thoroughly in the back end of the fire-box, where the crown sheet had not been disturbed, and using my magnifying glasses on same could find no difference in appearance of the bulged part of the crown sheet and the part that had not been disturbed, which would indicate that the bulge was not caused by lack of water, and overheating of crown sheet. The bulged part of the crown sheet and the part that had not been disturbed being both identically the same in appearance would be a correct indication that the sheet had not been subject to any intense heat caused by lack of water. * * *

"There are several things that might have caused this dropping of the crown sheet. These bolts not having a bearing all around, I will here state the reason why this may be one of them: The wagon-top having a radius of eighty-four inches, it would not give a uniform circle between the wagon-top and the crown sheet. When these bolts are screwed into the crown sheet it is absolutely impossible for them to have an equal bearing all around, and it may be that when they were screwed in they did not come up close on one side, perhaps all the way from a sixteenth to a fourth of an inch; consequently a heavy hammer was used to hammer these bolts up on the side that stood off from the crown sheet, in order to close the heads of the radial stays close to the sheet, thereby fracturing the radial stays close to the head. This would make a fractured bolt." * * *

Other possible causes of the bulging of the crown sheet are stated in the report of the boiler inspector, but it was known that the engineer who was running the engine at the time of the explosion was in no way to blame.

Railway and Locomotive Engineering, a standard authority on locomotive matters, says of boiler explosions and their preventives:

"When a disastrous explosion of a locomotive boiler happens, the blame is thrown upon the engineer in charge, if possible, and failing in that, upon the master mechanic or the foreman immediately responsible for the systematic inspection of the boiler; but all these personages are mere buffers to prevent the shocks of the real responsibility from flying upward to the real culprits. The demand to keep the motive power working at any cost is what induces the underlings to risk the neglect of inspection. The prevailing sentiment among directors is 'move freight and passengers at all hazards. Do the work safely if practicable, but move it.'

"Laws ought to be established that would make the systematic inspection of

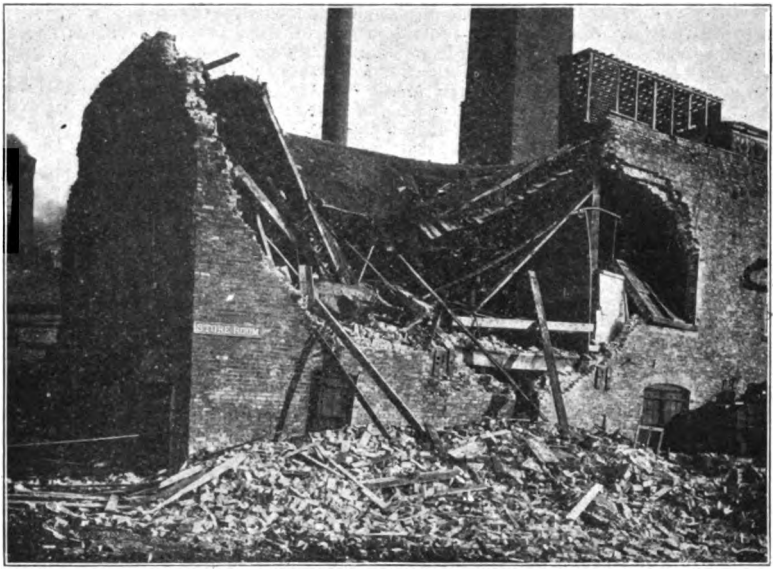
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boilers imperative periodically, and the head of the mechanical department should be held responsible for neglect of the very important work. He, of course, would pass upward the responsibility for accidents.

"Some railroad companies have made contracts with boiler insurance companies to assume the responsibility of keeping their boilers safe. Where that is done everybody interested may rest assured that no boiler is at work with scores of stay bolts broken, which is a very common condition where systematic inspection is neglected. Hiring the services of an insurance company to keep the boilers safe is better than depending upon the overworked foreman boilermaker; but a still better method could easily be arranged to be carried out by powers whose actions would be backed by national authority.

"The United States Government holds supervision of marine boilers, and it is generally conceded that this system of control is right and proper. On the same principle it would be a small extension of government authority to put the boilers of all locomotives engaged in interstate commerce under the control of the Interstate Commerce Commission. Many people supposed, when Congress put power in the hands of the Interstate Commerce Commission, to compel railroad companies to equip their cars with safety appliances, that the law would remain a dead letter; but it was enforced; and many people are alive today enjoying the pursuit of happiness who would be in their graves had the law relating to the compulsory use of safety appliances been permitted to fall into desuetude. The extension of the law to include locomotive boilers would be one of the most humane acts that Congress could possibly put in force.

"There is no rational reason why the boilers of locomotives engaged in interstate commerce should be exempted from government inspection and supervision when boilers of steamers are subject to this form of control. The lives of people traveling on railroads are certainly as valuable as the lives of those who travel by water. The practice of requiring marine boilers to be systematically inspected by competent boiler experts has proved one of the best safeguards of human life ever introduced. An explosion of a marine boiler is a remarkably rare occurrence, due directly to proper periodical inspection. Travelers by land ought to enjoy similar immunity from accidents. The same treatment will produce like results."



THE SWIFT STORE ROOM THROUGH WHICH THE STEAM DRUM WAS BLOWN

It is not only railway officials in whom this seeming neglect or ignorance is noticeable. In manufacturing plants the head officials assign about as much importance to the boiler room as they do to their kitchens, and with them a boiler is at par with a cook stove. The explosion at the Swift Packing Company's plant in Chicago was so disastrous in its

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effects, and so much was said about it in the newspapers, that many old shells were replaced by new boilers. As the particulars of this explosion are so well known, and as it has passed into history, but little need be said now, except the accompanying illustrations will be of interest. Concerning this and other boiler explosions, Mr. Charles F. Hart said, in an article published in the Chicago Record-Herald:

Lest we forget! It does seem a kind Providence wills that at frequent intervals we shall have a boiler explosion to remind us of our duty to our fellow men. The public can not be interested in tensile strength, ductility, single and double riveting, hydrostatic pressure, etc. What the average mortal wants is some assurance, when located near or passing by a boiler room, that he will not be induced to take an aerial trip with an exploding boiler as the prime mover.

To the initiated a boiler explosion is not a surprise. The surprising feature is that it is not more frequent. One can conceive of no more pathetic struggle than the labors of a board of experts endeavoring to locate the possible cause of a boiler explosion. While they invariably fail to agree, it is usually assumed that low water was the cause. Their verdicts are like that of the country coroner, who, whenever a perplexing case demanded his attention and for lack of a better cause, concluded the decedent died of heart failure, and no one could deny this fact.

One thing remains certain, and no board of experts can convince to the contrary, had the boiler been strong enough to withstand the pressure it was subjected to no explosion would have resulted. Then it remains to ascertain if the boiler was subjected to an excess pressure.

It is an open question among the brightest minds in the mechanical world today if low water will cause a boiler explosion where one boiler is connected to several others by a large steam header. It is at once apparent that an excess pressure on the one boiler would be shared equally by all boilers and steam connections. Furthermore, many are yet to be convinced that high water is not more dangerous than low water.

It is a commonly accepted theory if an effect is produced there must be a cause for it. However, it is not always policy to state our opinions too freely. For a few days after a boiler explosion the owner of a steam plant is interested in his boiler room and is very solicitous as to the condition of the boilers. He sends for the engineer and wants to know if the boilers are in good shape and whether anything can be done to make them better.

It is not unlikely that had the engineer approved his employer's solicitude on the subject of boiler repairs a few days prior to an explosion he would have been told to wait for a time, that he is too busy now and not making money enough to run up a boiler repair bill.

The following was brought to the notice of the writer: An engineer of a pretentious manufacturing plant had been trying for three months to have his employer make some very necessary repairs on his boilers and had begged so hard he was told if he could not run those boilers in their present condition another man would be hired to do it. Saturday evening his employer read of the accident at the stockyards. He sent a messenger to the engineer at his home and made arrangements to put the boilers in first-class shape, even if it necessitated closing down the institution for a month.

The engineering department of the majority of the business enterprises is an appendix, a necessary evil. The janitor has far more social caste and influence with his employer than the engineer. Why should this be? Lack of knowledge!

Our merchant princes have been through every department of their business, some starting as cash boys and passing through all departments. Should a vacancy occur in their establishments, buying, selling, managing, crediting, etc., they could at once fill it. However, in writing their obituary no mention will be made of the fact that they went through the engineering department. A man can not be interested in a subject he knows absolutely nothing about. It is too hot and dirty to investigate the engine room, and when the owner does visit his engine and boiler room it is invariably on a fault-finding tour.

There are in the downtown district of the city of Chicago 100 boilers which, owing to their location, can not be properly inspected. The newspapers tell us the exploded boiler was subjected to a cold water pressure of 180 pounds. That implies absolutely nothing. A cold water or hydrostatic test is a relic of the barbaric ages and has been abandoned by the insurance companies for years. It is only in vogue where a board of aldermen or other legislative bodies create a boiler inspection ordinance along the same lines an ordinance regulating the muzzling of dogs is made.

In building a boiler, according to all accepted laws, a factor of safety is used, that is, a boiler built to withstand a pressure of 600 pounds per square inch before bursting is considered safe to operate at 100 pounds per square inch. According to our present boiler ordinance a boiler is to be subjected to a hydrostatic pressure 50 per cent. greater than the pressure allowed on the boiler; a boiler to carry 120 pounds of steam per square inch must be tested to a pressure of 180 pounds. Whether this is to try and burst the boiler at 65 per cent. below its calculated bursting pressure is not known, and it is doubtful if it ever will be.

Our boiler inspection department is doing yeoman service, not so much in the inspection of boilers as in their ability to induce the owners to listen to their

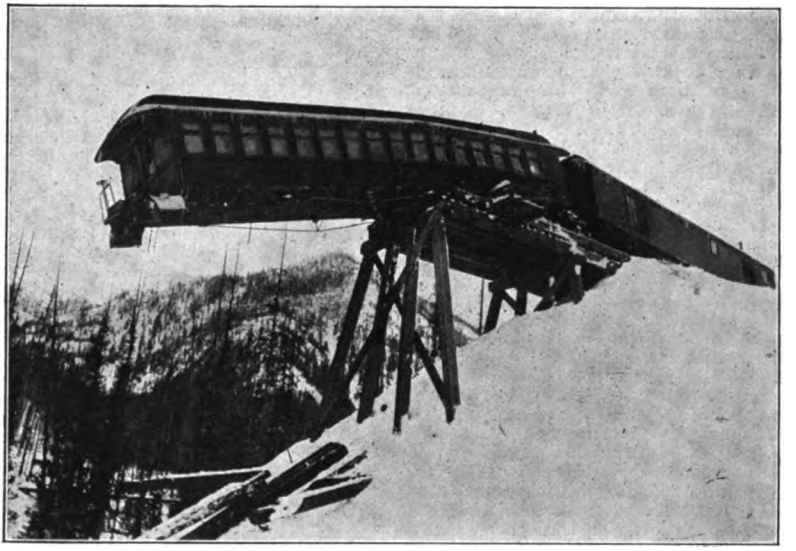
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engineer's pleadings for boiler repairs and improvements. If the owner is obdurate, a gentle hint to the boiler inspection department usually brings about the desired repairs on an order from the department, but woe to the engineer should his employer get an inkling of this stratagem.

An external and internal examination of a boiler, sounding all seams, sheets, rivets and flues for possible cracks, pitting, corrosion, etc., is the only proper method for boiler inspection. This, however, takes time, and our present inspection department could not thoroughly inspect all the boilers within the city limits in five years. The force is woefully small. The sooner the force is increased and a new and modern ordinance regulating the operation of steam boilers is created, the nearer we will get to reducing the number of boiler accidents. It is not to be inferred that the recent explosion was due to insufficient inspection. This tragedy will be only too soon a reminiscence, and all the theories on this particular case will not help the unfortunates that were killed at that time.

The daily papers hint at incompetent men in charge of boilers. The city of Chicago has an ordinance for the examination of engineers to take charge of boilers and other steam generating apparatus, and a board of examining engineers is appointed by the mayor to examine applicants and renew licenses. Particular attention is paid to see that the applicant has a thorough knowledge of the different types of boilers, pumps, engines, etc. However, until this examining board is divorced from the spoils system, and handled under the merit system, nothing startling can be accomplished in raising the standard of the men holding engineers' and water tenders' licenses, as a board whose term of office is limited to two years or their political good behavior, can not be expected to hew too close to the line.

The fireman, under whose direct care 75 per cent. of the boilers in the city are operated, is given practically no consideration. He is supposed to work from twelve to fourteen hours per day and seven days a week, handle from eight to ten tons of coal, clean his fires perhaps twice a day and take care of the resultant ashes and clinkers, receive all the smoke notices and their threats of dismissal if the fireman receives another notice, etc., and all this for a wage totally insufficient to induce intelligent firemen to remain in the boiler room longer than they can absolutely help.



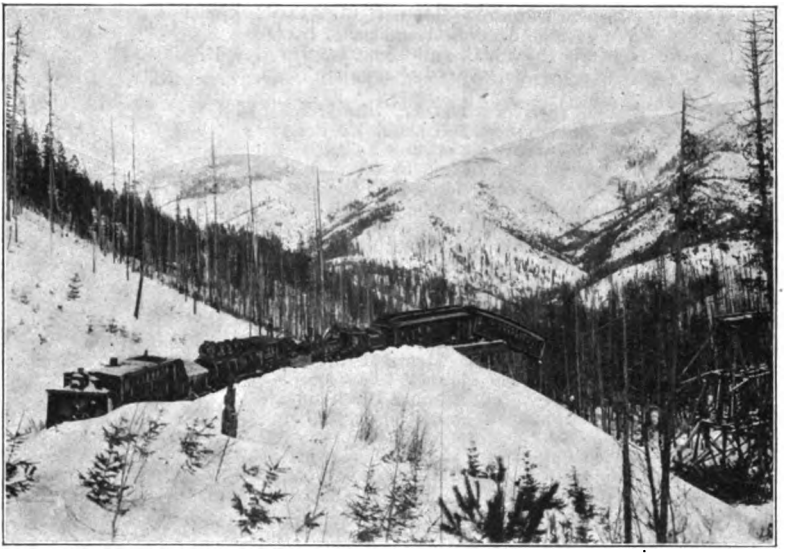
A NORTHERN PACIFIC WRECK

In brief, a decided improvement can only be accomplished by radical departures from present methods. Enlarge the boiler inspection department and assist it with a modern ordinance; raise the standard of engineers and firemen by better inducements and more rigid examination, paying more attention to the boiler room: for sure as fate, as our boiler installations get older each year, look for accidents, only to be prevented by eternal vigilance. An indulgent public, after a few horrors similar to the recent explosion, will rise in its might and demand protection. Why wait?

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A Northern Pacific Wreck.

The three illustrations published herewith are of a wreck that occurred in Idaho that was something out of the ordinary wrecks. The train, or collection of rolling stock, was as follows: A big rotary snowplow, a locomotive pushing the plow, a passenger locomotive, a baggage car, a coach, a caboose and another locomotive. The snowplow and helper locomotive had been trying to open up the blockade above Mullan and had broken down. A passenger train trying to get through came up, and all started to back-up to Wallace. After working nearly all night they got as far back as the "S" bridge, the caboose, one coach and locomotive being entirely on the bridge. Being exhausted with shoveling snow the train crew and helpers went to sleep in the caboose. At 7 o'clock in the morning a snow slide started far up the mountain side and came tearing down the gulch, carrying away a portion of the bridge. The locomotive and caboose fell eighty feet. No one was on the locomotive, which was buried in the snow, and the eight persons in the caboose were not killed, the great depth of snow acting as a cushion. The passenger coach remained suspended as shown in the illustrations. One passenger jumped through a window of the coach, falling in the snow eighty feet below, but was not injured.



A NORTHERN PACIFIC WRECK

There are heroes in the world today
 Who wear no crown of fame;
No laurel rests upon their brow,
 The world knows not their name.
And yet, in paths of duty,
 From dawn to set of sun,
There's many a glorious battle fought
 And many a victory won.

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"Smokeless Firing"

With Apologies to Ed. E. Sheasgreen

The ol' man lighted his dudeen
An' watched 'em hitchin' the new machine
To his good ol' engine, Two-nineteen,
 An' he couldn't keep from swearin'.
"Before we're over the first big hill
We'll be as dead as a mackeril,
Fer the thing will fail—yes, I know it will,
 An' will be in need o' repairin'."

"Well, give 'er a chance," the fireman said,
But the engineer jest shook his head
An' puffed till his ol' dudeen got red
 As he looked at 'em fit the stoker.
"A blind man couldn't help but see
That its work won't be what it ought to be;
It's bound to fluke, an' it's plain to me
 That the thing is a reg'lar smoker."

But they coupled on the new machine
An' started a fire in Two-nineteen,
An' the ol' man put up his ol' dudeen
 With his temper still a-blazin';
While all the time with a steady stroke
The stoker was showin' how to stoke
An' doin' it, too, without black smoke
 An' the steam-gauge quickly raisin'.

When our leavin' time at last came round
The ol' man looked at his gauge an' found
That it showed a hundred an' eighty pound,
 Which we rarely had at startin'.
An' then we started upon our run
With a load o' twenty hundred ton,
But the stoker seemed to think it fun,
 For the steam went up, I'm sartin.

The ol' man now was madder still,
An' when we tackled our first big hill
He swore as only a mad man will
 When he is good an' hoppin'.
Then he gave the throttle a mighty jerk
An' both injectors he put to work
An' we rushed up the hill like a bloomin' Turk,
 But on top o' the hill she was poppin'!

We had lots o' work to do that day
An' a heavy train nearly all the way,
But to keep on time seemed only play
 When the stoker was a-stokin'.
An' firin' heavy or firin' light,
No black smoke ever was in sight—
The only smoke we made was white—
 Real smokeless firin', boys—no jokin'.

Our fire was always nice an' clean,
An' such a snap I ne'er have seen
As firin' with that new machine,
 Though I did hate to try it;
An' when we got in from our run
The ol' man says to me, "Say, son,
Let's make a kick to keep it on,
 An' if they won't we'll buy it!"

[These verses were written by Mr. A. S. Burroughs, the Day-Kincaid Stoker ad. man, who was seized with poetic inspiration upon reading the poem with same title published in the last issue of this Magazine, which poem was one of Mr. Ed. E. Sheasgreen's happiest efforts.—Ed.]

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Odds and Ends

Notes.—According to the Winnipeg (Manitoba) Free Press of March 4, 1903, a movement has been started in Montreal looking to the organization of the railway clerks of all Canada.

A fireman who had been working on the Cleveland and Pittsburg Railroad, according to the Pittsburg (Pa.) Leader, of February 11, 1903, becoming dissatisfied with that section of the country decided to go West. To one of the letters he wrote to Western roads applying for employment, his reply was transportation from Pittsburg to Ogden, but no letter accompanied it, which he took as a hint, and immediately took a train for the West.

The oldest passenger conductor in point of service in the United States is said to be Mr. John Nelson, a Big Four conductor, residing at Galion, Ohio, who has been in the employ of what is now known as the Big Four Railroad since 1856.

The Baltimore and Ohio Railroad is said to be in the market for 200 new locomotives, of which 190 are to be freight engines. The estimated cost of these engines is $3,000,000.

On the morning of February 16th as a passenger train on the Cincinnati, Hamilton and Dayton Railroad rounded a curve near Wyoming, the engineer is said to have discovered two large piles of coal directly in the path of the train, while two negroes were in a coal car making the piles larger. The engineer reduced the speed of the train, and as the engine struck the piles of coal it gave a bound but kept on the track. The negroes attempted to escape but were captured and taken before the mayor, charged with attempting to wreck a train. Several windows in the train were broken but that was the extent of the damage done.

The Hannibal (Mo.) Journal, of February 27, 1903, states that on the previous day the boiler of an engine pulling a passenger train on the Wabash Railroad, with orders to meet another train at Berlin, a station between Hannibal and Springfield, Ill., exploded while waiting for the other train, and that neither the engineer or fireman was injured.

The Order of Railway Expressmen of America is said to be the name of a new organization recently formed, and is intended for the benefit of the men who handle the express business. Its membership is said to be already scattered throughout the United States, Canada and Mexico.

According to exchanges, a Brooklyn electrical engineer has patented a signal appliance to be used in connection with the present arrangement of semaphore signals. It is said that with this appliance a signal will be displayed on the locomotive immediately before the eyes of the engineer, that the signal can not be obscured in fog or darkness, and if it be a danger signal it will cause the air brakes to be applied and the train stopped, even should the engineer be dead in the cab. For danger it is claimed for this invention that it will display a red light, blow a whistle, and apply the air brakes simultaneously, while for caution it simply shows a green light in front of the engineer's eyes.

The Norfolk and Western Railroad is said to have ordered 110 new locomotives of the Atlantic type.

Mr. C. B. Conger's "1903 Air Brake Catechism" is the best of the many editions of this popular book of instruction. Much new matter has been added, which brings the book right up to date. Price 75 cts. and $1. Sold by Angus Sinclair Co., 174 Broadway, New York.

Mr. W. O. Thompson, for many years secretary of the Traveling Engineer's Association, has just published a valuable little volume entitled "Examination Questions for Promotion." The 211 questions and answers cover the road repairs and management of a locomotive. Price 50 cts. and 75 cts. Sold by Angus Sinclair Co., 174 Broadway, New York.

* * *

A State-Owned Railway Proposed.—Mr. J. H. Ehrehart, the chief appraiser of special franchises in the State Tax Commission of New York, believes that an electric freight railroad along the bed of the Erie Canal from Buffalo to Albany and then on to New York, at an estimated cost of $100,000,000, would be the proper solution of the problem of restoring commerce to the port of New York. He says that a railroad could be constructed on the canal right of way to traverse the entire State without a grade crossing, and by constructing a tunnel four miles long southeast of Schenectady, freight could be hauled from Buffalo to New York and

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raised less than 50 feet in the entire distance, and part of this amount of elevation would be required to modify the grades in Rochester, Syracuse and Utica. The State owns admirable terminal facilities in the city of Buffalo.—Railway and Engineering Review.

♦ ♦ ♦

Didn't Want to Collide With the Flyer.—Passengers on an eastbound accommodation had an exciting experience last month at a little town not far from Toledo, Ohio. This train, when on time, sidetracks at this place for the Twentieth Century Flyer to pass. Being late out of Toledo, it had only reached Martin when orders were given to cross over from the north track, used by trains going east, to the south track. After some little time waiting further orders were given to sidetrack to allow No. 141, a west-bound passenger, to pass. After a few more minutes of waiting the flyer was seen approaching at her usual speed.

A passenger, who had forgotten that this train had left the main track, spied the flyer coming, and thinking both trains were on the same track, and believing a collision inevitable, sprang to his feet and cried: "The flyer is coming! A collision! Jump for your lives!" The passengers scrambled from their seats and went pell-mell from the train without taking thought as to where they would alight, their only thought being to escape before the crash came which would kill or maim all on board. Two ladies, one an invalid on a return from a visit to a Toledo specialist, plunged into a ditch filled with water. Two men made their escape from the north side of the train, and to make sure hastily crossed all the tracks to the north, landing in a ditch, from which they scrambled, and ran into a barbed wire fence, cutting themselves badly about the face, neck and hands.

By this time the flyer had passed and the passengers again boarded the train, which pulled out. After running about a mile it was discovered that the two lady passengers had been left. The train was backed up. When found they were walking as fast as they could toward Toledo.—Railroad Men.

♦ ♦ ♦

A Change of Policy.—The following press dispatch from Terre Haute, Ind., indicates that the spirit of fairness is becoming more popular with railway companies:

Manager Hammond told the men that he would not discriminate for or against brotherhood men and that brotherhood men need have no fear hereafter about taking employment on the Chicago & Eastern Illinois. He did not intend, he said, to ask if a man took part in the so-called Debs strike of 1894.

Ever since 1894 the policy of General Superintendent Broughton has been to discharge an engineer or fireman as soon as he learned that he was a brotherhood man. At the time of the strike, traffic was deliberately suspended for nearly a week until the company had replaced all union men, regardless of whether they had joined in the strike, most of the brotherhood engineers at the time declining to go with the American Railway Union. Time and again the brotherhoods, secretly, had almost got the system organized, when Broughton would get a tip, and men were discharged rapidly.

♦ ♦ ♦

Novel Use for the Telegraph.—A man hopelessly lost in the bush of South Australia, after wandering about for days, came upon the telegraph line between Adelaide and Port Darwin. He hadn't strength to go farther, but he managed to climb a pole and cut the wire. Then he made himself as comfortable as possible and waited. The telegraph repairers were sent along the line, and they came to the wanderer in time to save his life.—Telegraph Age.

♦ ♦ ♦

American and English Locomotives.—According to the Newcastle, England, Daily Leader, an official of the Midland Railway locomotive department is reported to have said in an interview the following: "The tremendous cost of up-keep is against the American engines, not only as fuel burners, but also with respect to maintenance. The Midland Railway engineers have given them a free hand, but practical experience has revealed nothing to demonstrate the superiority of the American over the home-made article. Americans can not build an engine suitable to the English railroads. That is now admitted by the most important of our engineering experts."

As showing that not all English railroad officials are fully convinced of the great superiority of the English over the American locomotive, the following is taken from the Chicago Record-Herald of March 6, 1903: "Executive officials of the London and Northwestern Railroad arrived in New York yesterday with a view to making a thorough study of American methods, and especially of American

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locomotives. The party is headed by Lord Stalbridge, and includes Traffic Superintendent Turnbull, Chief Engineer Thornhall, Locomotive Superintendent Webb, Signalling Superintendent Thompson and Goods Manager Craseman. During a month's stay in the United States these officials will visit every important railroad center in the country, confining their observations particularly to rolling stock, signalling and the methods employed in both. The visit bids fair to have an important bearing upon the future of the American-built locomotive, not only in England but in other European countries.



A NORTHERN PACIFIC WRECK

One member of the party said he was convinced that American locomotives had not been given a fair show in the old world and that he expected to learn they were superior to any other make and would wear longer. He said that he had worked an American engine for a few days because complaint had been made against it, and found that it was the most remarkable machine he had ever driven. The broad assertion was also made that if it were found necessary to overhaul the entire London and Northwestern System in order to bring it up to the best American standard this would unhesitatingly be done."

* * *

Still Had His Nerve.—The engineer had been many years in the service of the road, and it is a well known fact in railroad circles that in time the majority of engineers lose their nerve. They become too cautious, and as a result they get their trains in late.

This engineer—and this is a true story—had lost his nerve. He had a passenger engine, and twice he had been told that if he could not bring his train in on time he would have to begin hauling freight. That is a pretty hard threat to throw at an engineer, and he meekly promised to do better.

On the occasion of the third warning he asserted that he would bring the train in on time "even if there was a brick house on the track and a barn in addition."

He came into the office after his "run" a day or so later, glanced about the room, looked up at the ceiling, and then asked:

"Seen any of it?"

"Of what?" asked the official.

"Coal," said the engineer.

"Coal!" repeated the official. "Why should we expect to see any coal here?"

"Oh, I guess it hasn't come down yet," answered the engineer carelessly.

"What do you mean?" demanded the official.

"Some one left a loaded coal car on the main track," explained the engineer. "Switch turned too soon or a coupling broke, I guess. Anyway, it was there."

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"And you——"

"Oh, got in on time. I'm not like a man who has lost his nerve—not by a good deal."

"But the car! How did you get around—"

"I didn't get around. I pulled her wide open and came through. There's about half a ton of that coal on the top of the rear coach, and I was expecting to find the rest of it here. The last I saw of it was high and scattering."

"Great Scot!"

"And say!"

"Well?"

"The smokestack of the engine is gone, there's no pilot left, and the windows of the cab are busted. But, of course, I was acting under orders, and I got in on time. And say, again!"

"Well?"

"Just put it down on your books somewhere that an engineer who hasn't lost his nerve, but is tired of keeping it, resigned from the service of the road today, and is going to look for a job on a farm."
—Brooklyn Eagle.

♦ ♦ ♦

A Check on the Engineer.—Since the recent Jersey Central wreck of a fast passenger train, caused by the engineer passing the danger signals which were set to warn him that another train was occupying the same track shortly in advance of him, and which resulted in the death of a number of passengers as well as himself, many ideas have been advanced as to the best means of eliminating the danger of the recurrence of such disasters. The following is taken from the New York (N. Y.) Press of February 7, 1903:

"Extremists who demand the almost total elimination of the personal equation from the risk of railroading ought to consider the advantages to be gained by depending more instead of less on human agencies, as involved in the proposal to have two men in the engine cab, each of whom shall check the other's failure, supplying the unrelaxing vigilance without which disasters of the rail never can be prevented. There are some perils constantly threatening the lives of railroad passengers which never can be removed by mechanical ingenuity. In the last analysis of responsibility the man at the lever must be trusted. But if there is a means of holding him up to the strictest accountability to that trust, why should it not be employed?

"Ordinary business precautions provides check and counter check on the trusted employe. Books are audited, bonds are required, and the custodian of funds is surrounded with every possible safeguard not only against dishonesty, but against neglect and temptation. Hence if human fallibility is reckoned with in the care of funds, why are check and counter check dispensed with in the stewardship of human life? All manner of devices do not abolish embezzlement nor can either mechanical or human means put an end to all railway wrecks. Proper precaution does, however, prevent the theft of incalculable millions. But upon the engineer whose hand may be suddenly paralyzed from any cause or whose sight or mind or heart may fail without warning there is absolutely no check."

♦ ♦ ♦

A Government Railway Strike.—The following items concerning the recent disputes between the Government of Holland and its railway employes tell the story:

"The railway strike in Holland ended on Sunday in a complete victory for the workers. The companies have been compelled to accept the strikers' demands on account of the danger of a famine due to the lack of meat, as cattle could not be forwarded. The strikers' victory is generally considered as a fact of great importance, as their example may be followed by the workmen of other Continental railways."—Herapath's Railway Journal (London, Eng.).

"There is no fear that the victory of the Dutch railway strikers will have any effect whatever in this country, whatever may be the case on the Continent. Government railway companies are not in a good position to resist pressure, since the strikers have votes, and the railways are dominated largely by political influences. Railway trades unionists in this country are more exercised just now about paying the Taff Vale bill than in planning any new compaign. To use John Burns's phrase, the stuffing has been knocked out of them."—Herapath's Railway Journal.

"A recent press dispatch from Holland states that three bills have been introduced in the legislative body of that country, occasioned by the recent railroad strike there. It is proposed by the government to form a railroad brigade, to insure a regular service of trains in case of need. The just complaints of railroad employes are to be adjusted by a royal commission, which would be intrusted later with the settlement of the situation from a legal standpoint, as well as regarding the conditions of service of the employes. It would also have to decide what constituted criminal acts. One of the bills provides for a modification of the penal code with the object of affording a surer guarantee for the personal freedom of labor and preventing State officials or persons engaged in occupations affecting public interests from absenting themselves from their duty. The bill further provides that refusal to do duty on the part of employes of the railways or other public services may be punished by six months' imprisonment.

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If two or more persons rise in rebellion the penalty is increased to four years' imprisonment for the ringleaders or those guilty of criminal acts."—Railway and Engineering Review.

"The railroad employes of Holland have decided to cease work, with the object of preventing the adoption of the proposed law prohibiting railroad strikes. A meeting of the leaders of workmen's unions having a membership of 90,000 has resolved to support the railroad men, the date of whose strike has not yet been announced. The Hetvolk, a socialist paper, says it understands martial law will be proclaimed on Monday at Amsterdam, The Hague, Rotterdam and all the ungarrisoned towns, because of the threatened general strike."—Press Dispatch from Amsterdam.

"The report that martial law will be proclaimed on Monday at Amsterdam, Rotterdam, here and at other points has been denied officially."—Press Dispatch from The Hague.

♦ ♦ ♦

Increased Wages.—Based upon information obtained from press reports the following increases in wages are reported:

An agreement is said to have been reached between officials and members of the joint committee of conductors and brakemen of the Union Pacific Railroad whereby the wages of 1,500 of the employes are increased from 12 to 15 per cent.

A new schedule of wages has been granted the engine and trainmen of the Chicago and Eastern Illinois Railroad.

A new schedule of wages has gone into effect on the Santa Fe, whereby the conductors, brakemen, and certain classes of baggagemen will receive an advance of from 12 to 15 per cent. In addition to the above, double-headers are to be abolished entirely, except where necessary to get trains over grades.

An agreement is said to have become effective March 2, 1903, whereby a large number of the employes of the Boston and Maine Railroad are to work ten hours per day with a good increase in wages.

Freight and passenger enginemen of the New York Central Railroad have been granted an increase in wages averaging about 5 per cent. over the previous schedule, the increased pay beginning with February 1, 1903. The new schedule is said to affect upwards of 2,000 men.

Announcement is made that the section men on the Chesapeake and Ohio Railroad have been granted an increase in wages as follows, dating from February 1, 1903: Foremen are advanced $5 a month, and section men ten cents per day.

Firemen on the Mobile and Ohio Railroad have been granted an increase in wages equal to those paid by other lines in the same territory.

An increase in wages amounting to 3½ per cent. has been granted the engineers and firemen on the Cincinnati, Hamilton and Dayton Railroad.

♦ ♦ ♦

Railroad Accidents.—Exchanges report accidents to have occurred recently as follows:

On February 5, 1903, a rear-end collision between two freight trains on the Rock Island Railroad at Tecolate, New Mexico, resulted in the death of one engineer and four others.

A double-header freight train on the "K Line" bound for St. Louis, when near a wooden bridge across Lost Creek, became derailed by the leading engine leaving the track and running onto the bridge, after which it toppled into the creek. The second engine also left the track, but stopped before reaching the point where the first engine fell. At the time of the accident the speed of the train was low, and the crews saved their lives by jumping.

On February 11, 1903, a passenger train on the Michigan Central Railroad ran into an open derailing switch near a block signal station near Detroit, throwing the engine, baggage car and smoking car from the track. The fireman was badly shocked by jumping and striking the back of his head, the engineer was severely shaken, and a brakeman had his leg bruised.

By the bursting of a water bar on the engine pulling the Northern New York express on the morning of February 13, 1903, according to the Albany (N. Y.) Journal, the engineer and fireman were both badly scalded.

On February 13, 1903, an eastbound freight train on the Baltimore and Ohio Railroad, when near Vienna station, 14 miles west of Washington, Pa., struck a large boulder which was lying on the track. The train was piled up in a confused mass and the track was torn up for several hundred yards. The engineer, fireman and one brakeman were killed.

On February 18, 1903, a passenger train on the Erie Railroad, when near Sharpsville, left the track when near the station, the engine plunging down an embankment and dragging the baggage, mail and express cars with it. The engineer was killed, but the fireman escaped by jumping.

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A freight train on the Chicago and Northwestern Railroad, on the afternoon of February 18, 1903, struck a broken rail when near Kewaskum. Eleven cars and the engine went down a fifteen-foot embankment, killing the engineer, fireman and one brakeman.

On the night of February 22, 1903, a fast passenger train on the St. Louis and San Francisco Railroad, pulled by two engines, jumped the track when within a quarter of a mile of the Gasconade River crossing at Arlington, killing the express messenger and probably fatally injuring one engineer. The other engineer, both firemen and a boilermaker were severely injured.

On the morning of February 25, 1903, a collision between a road engine and a switch engine in the Baraboo, Wis., yards of the Northwestern Railroad, resulted in the death of one fireman, and the other fireman losing his right leg and having his left leg broken.

On the morning of March 7, 1903, a freight train on the Cumberland Valley Railroad parted while on a grade. After running some distance the two sections collided, derailing and smashing several cars, killing one brakeman and injuring several of the crew.

Lament of the Section Boss

Me father, me brothers, says Danny, the boss
 And all of me kin that Oi iver have known
Has worked on the road since they laid the first tie.
 Revered and renowned is the name of Malone.
For twinty-wan years on the siction Oi've toiled,
 In the rain and the shine, in the summer and fall;
Because Oi was worthy, the roadmaster said,
 They put me in here as the boss of thim all.

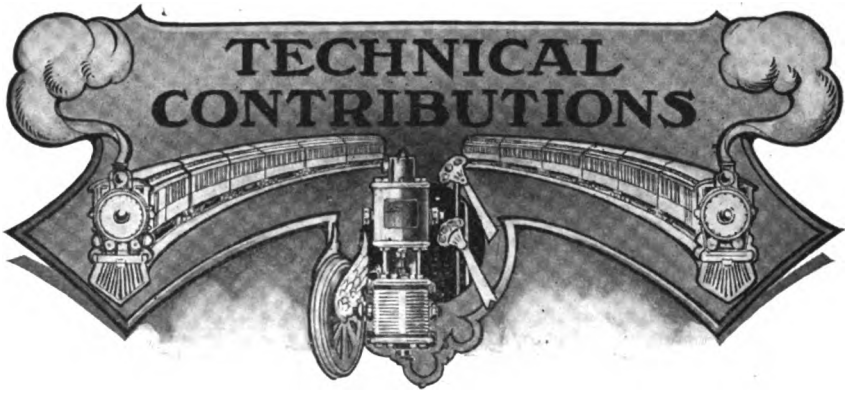
Sure me loife was contint when Oi worked on the road,
 And niver so much as a kick did Oi make;
But now Oi could quit any toime of the day
 When Oi think of me head an' the way it does ache;
For it's aisy to do what the siction boss sez,
 But, arrah, when you're bossin' a hundred or two
It's different sure; it's the truth thot Oi spake,
 For it's h——l if you don't and it's h——l if you do.

First the roadmaster comes an' he looks at the job.
 Sure, sez he, you're not doin' this tracklayin' right;
But it's Mister White's blue print, sez I, Mr. Flynn.
 Domn the blue print, sez he, domn the print an' domn White.
Faith, ye'll do ez Oi tell you or git off the job.
 Sure Oi will, Mister Flynn, sez I, bowin' a few;
And the chafe ingineer raises Nid the nixt day.
 Sure it's h——l if you don't and it's h——l if you do.

Thin the superintender comes 'long in his car.
 Phwhat the hell is the matter? Look here, Dan Malone.
But the chafe ingineer give the orders, sez I.
 Domn the chafe ingineer; let him lave you alone.
Thot's the way they go on, sure I'm spaken the truth;
 For the poor siction boss has of troubles a few.
Sure, Oi'd rather be back tampin' ties by the day,
 For it's h——l if you don't and it's h——l if you do.

—Roadmaster and Foreman.

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The Headlight

PROBABLY no attachment to the locomotive is more useful, and at the same time so ornamental, as the headlight. Considered as a useful and necessary part of the outfit of the locomotive, it is deserving of more care and consideration than is generally nowadays bestowed upon it.

Like almost every other thing we find on an engine, some are good, some are poor; and this is true in many cases where the reasons for the difference are not easily explained.

Very few enginemen of a year or more experience on locomotives that do not know that two headlights in the same condition with regard to cleanliness, good wicks, burners, etc., will often vary considerably in their illuminating power, and why this should be so is sometimes puzzling.

The function of the reflector of the headlight is to collect the light given out by the lamp, concentrate and throw it ahead upon the track, so as to illuminate the latter as far ahead of the engine as possible. That it does this is, of course, known to everybody, but why it does it is not well understood by many.

Different colors have different capacities for absorbing light; such as black, for instance, will absorb more light than any other color, and white will reflect more light than any other color.

For this reason, the surface of the reflector of the headlight is coated with white metal, generally silver; because this metal is nearly pure white, and will not absorb light, but instead will reflect, or throw back, the light that falls upon it from the lamp. Then to throw this light straight ahead, the reflector itself must be of a certain shape; it must have a certain form.

In geometry we are taught that if a plane is made to pass through a cone, or cut it, parallel to one of the sides of

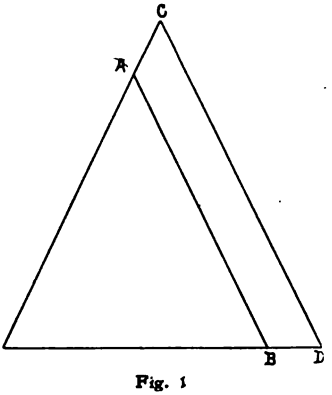


Fig. 1

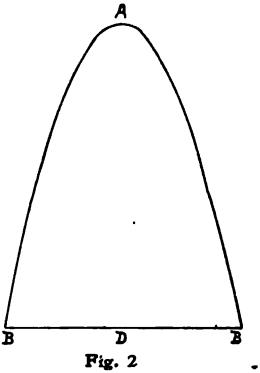


Fig. 2

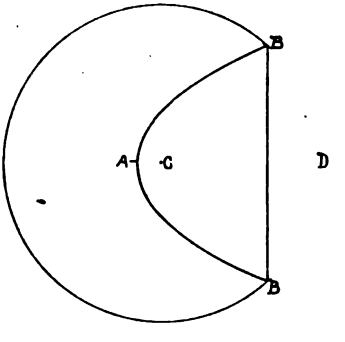


Fig. 3

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the triangle which forms its elevation, the line bounding the section of the surface of the cone, cut by the plane, will form the curve called the *parabola.*

Referring to Fig. 1, which is a triangle forming the elevation of a cone, the line *AB* represents the course of the cutting plane, parallel to the side *CD*; and in Fig. 2 we have a view of the section made by the cutting plane, and in Fig. 3 is shown the plan of the cone after being cut by the plane.

From these figures may be seen the curved line forming the edge of the section. It is the curve, formed in the above manner, that is called the *parabola.*

Again, a parabola is defined as a curved line such that the distance of every point in it from a fixed point, called the focus, is the same as its distance from a fixed line at right angles to the axis of the parabola, called the directrix.

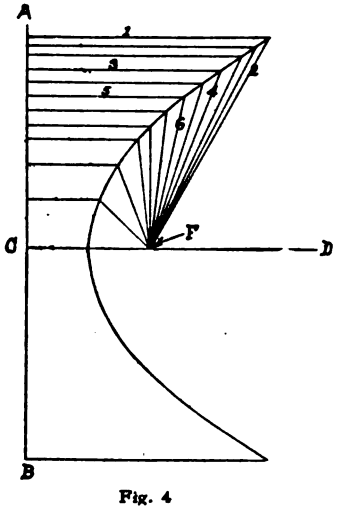


Fig. 4

To illustrate, in Fig. 4 we have a parabola; *AB* is the directrix, *CD* is the axis, and the point *F* on the axis is the *focus;* and the lines (1, 2) (3, 4), which meet in a point on the curve, are equal in length.

Now, the reflector of a headlight is made in the shape of a parabola, or better, perhaps, they are in most cases meant to be. However, the nearer they come to it the better the headlight is likely to be.

After consideration of the proper shape of the headlight reflector comes that of the location of the light in the reflector.

If a stone or a ball be thrown against a plane surface it will bound, and the direction in which it will bound will depend upon the direction in which it is moving at the moment it strikes the plane surface.

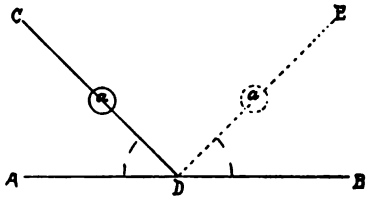


Fig. 5

To illustrate, in Fig. 5 we have a plane surface *AB*, upon which the lines of direction of the ball, *a*, before and after striking the plane, are shown. Line *CD* shows the direction in which the ball is thrown against the surface, and the dotted line *DE* shows the direction in which the ball is bounding away from the surface. A little inspection of the figure will show that the angle which the line of direction *CD* in which the ball strikes the plane, makes with the plane, and the angle which the bounding line *DE* makes with the plane are equal. The angle formed by the line *CD* is called the angle of *incidence;* the angle formed by the line *DE* is called the angle of *reflection.* Angles of incidence and of reflection are always equal.

In the headlight, the rays of light which proceed from the flame in the lamp strike upon the surface of the reflector at certain angles of *incidence* and are reflected or thrown from the reflector at angles of reflection equal to these angles of incidence. If the flame of the lamp is located exactly in the *focus* of the reflector, as is the case in Fig. 6, the angles of incidence will be such that the reflected rays will go straight ahead as shown—and that is the way the reflector should send them; but if the flame is out of the focus, as shown in Fig. 7, then the rays will not go straight ahead, and the light will be thrown to the sides, to a greater or less degree, depending on how much the flame is out of focus.

When a headlight fails to throw light as it should, or throws most of it over in the lots, it is a good plan to compare it with another of the same make that does throw the light ahead properly, and find out where the difference is between them. Very likely you will find the trouble with the poor light to be due to a wrong location of the flame in the reflector.

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After making measurements of the location of the flame in the good headlight, it will be safe to fix the flame in the poor headlight in accordance with the measurements so obtained.

With a properly curved reflector and the light located in the focus, the next things to be considered are the wick and the burner.

The oil tank and wick tube should be occasionally cleaned out thoroughly, so that it is certain that no sediment remains in either; then the wick should be put in, of the proper length, and of such width that it will fill the whole circle of the tube, and leave no space in it where the edges do not meet. Cotton flannel wrapped around the wick holder and bound with a piece of thread will make as good a wick as can be found.

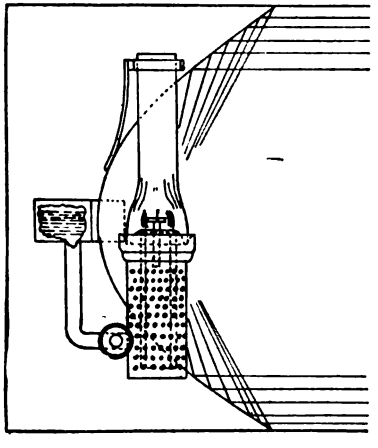


Fig 6

After the wick has been put in, fill the oil reservoir with good headlight oil, and light the lamp. If the flame does not burn nice and even, the wick should be trimmed, and this is done best by heating a piece of flat iron red-hot, and laying it across the wick tube on top of the wick, burning the wick down even all around the top of the tube. If it is not convenient to use the red-hot iron, the wick may be trimmed evenly with a sharp knife by turning the wick just high enough in the wick tube so that when the knife is worked along the top of the tube, it will cut the carbonized portion of the wick even with the tube all around, and leave the surface of the wick without any ragged threads.

After the wick is once properly trimmed and turned to the proper height to give the best light, it is better that it be not disturbed until cleaning and trimming are again necessary; therefore the light should be extinguished by blowing out, instead of by turning down the wick, when the engine is housed at the end of the trip.

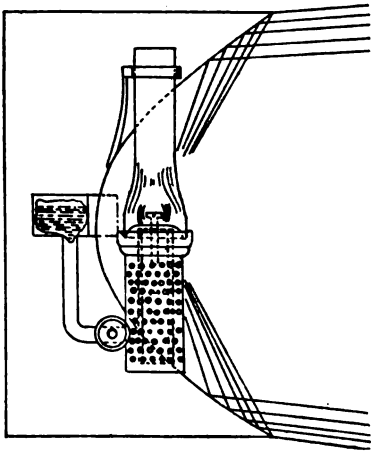


Fig. 7

The burner is of considerable importance in the headlight. If this is allowed to become dirty and crusted over, and the meshes of the strainer become clogged up, it will be impossible to get a nice, white flame from the lamp, because the air will not be supplied to it in the proper quantities to produce perfect combustion. Here, as well as in the fire-box, it is necessary, in order to get a white flame, other conditions being perfect, to regulate the admission of air. Inside the wick tube there is provision made for inserting a button whose function is to deflect the air that is coming up inside the wick tube toward the flame so that it will mix with it, and so produce perfect combustion and, consequently, a pure white flame.

Many believe that the function of the button is simply to spread the flame, but this is only what results indirectly from the air being thrown against the flame by the button.

If no air can come up inside of the wick tube to the flame, the latter will be

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smoky, and you will see that the button will not have the effect of spreading it any.

The perforated tubing of the burner admits air to the flame around the outside of it, between it and the chimney, and while thus supplying the outer portion of the flame with air to assist in producing a white flame, it also tends to keep the chimney cool, by directing the heat of the flame straight upward and so prevents it from overheating and melting out. When you find your chimneys melting, see if the perforated portion of the burner is not clogged up so that air can not get through it.

Regulating the draught through the headlight case can be accomplished by adjusting the slides in the back and the bottom of the headlight case, provided for this purpose. By means of these slides the admission of air is regulated, so that the flame in the lamp will receive sufficient air to burn well, yet there will not be a current strong enough to extinguish the light or affect the steadiness with which it burns while the engine is in motion.

If the interior of the headlight case is kept clean, and is painted white, the illuminating capacity of the lamp will be greatly increased.

When cleaning the reflector, care should be taken not to scratch it, and, therefore, no materials that are gritty, in the form of scouring powders, should be used; and the waste that is used in scouring and polishing should be carefully examined to see that it does not contain small pieces of wire and hard metal strips that, if rubbed on the surface of the reflector, would scratch it.

When the reflector is placed in the headlight case, it should stand square with the circular headlight glass in the case, in front of it, and the whole light when properly set up on the engine should be in line with the track.

A good headlight is a valuable assistant to the engineer at night and often helps toward preventing danger when going in on side tracks, where cars may be left standing; and in cases where switches are without target light, they make it possible to determine the position of the switch before passing it.

On the large engines of today, the headlight is placed so high that better results are had from it if the whole headlight, case and all, is slightly tipped so as to send out the rays of light slightly inclined downward. But much better results from the headlights on large locomotives might be had if it were brought down to a lower position than it now generally occupies. J. P. KELLY.

* * *

Frozen Train Lines.

We have had three cases of the "air" freezing, this winter, that have caused considerable delay and consequent investigation, and every one in any way connected with those cases was made to share the blame, but the direct cause of the trouble was not brought out clearly until our instructor lined us up in the air car the other evening.

"Well, gentlemen," he said, "it's a little late in the season, possibly, to talk of frozen air equipment, but we may live to see another winter, and we don't want this road to ever again have a case like that one that happened to our fastest train—31—which you probably heard something about, the other day.

"They left Corning on time, air working all right; tried to stop at Lakeside for water and ran way past the station; that was where their trouble, with air mixed with water, and the thermometer at zero, began. Arrived at Lansing, air working on only the engine, tender and first car—the brakes on the other four cars frozen up. Left Lansing two hours late with everything thawed out and working, but again had to thaw and blow out the pipes at Smithville. Went into Southport three hours and forty minutes late.

"No wonder there was a general stir-up. The roundhouse foreman at Corning stated that the engine's main drum, auxiliary reservoirs and triple valves had been drained before leaving the roundhouse. The engineer said the stuffing-boxes of his air pump did not leak, and that there was no steam blowing around where the pump could suck it in. He further stated—now take note—that there was not more than a few drops of water in the main reservoir each time they had to thaw out the train line and triples.

"A conductor is always required to report the reason, or his opinion, which is usually accepted at par, of anything that goes wrong on his train, and he, sometimes, hasn't the least idea about it. This case had to be explained, so the conductor and engineer caucused to lay it to the pneumatic water-lifts of the four cars that were frozen.

"When those water-lifts were designed, it was with a thought of just such possibilities, and it is not probable that they

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ever did cause a trouble of this kind. The coach foreman at Corning, however, disconnected the water-raising apparatus and plugged its connection to the auxiliary reservoir, under each of these cars, when they returned to Corning. A few days later the temperature again dropped below zero, and the same cars came in to him with two of their triples frozen so they wouldn't work, and one pair of hose stopped up with ice—and the water-lifts proved an alibi.

"There was so much water in the air-brake parts, that it does seem hard to believe it could all come from the pump on the engine—some people don't—won't—believe it yet; but right there is where it came from.

"You have read it—I have explained it, time and again—that the moisture in compressed air will not precipitate—that is, settle—let go and fall down—while the air is hot or very warm. Now the pump heats the air as it compresses it, and the bigger the pump and the faster it runs, the more free air taken up and compressed, and the more heat generated. Where does the heat come from? From friction of the pump pistons? Not on your life. It gets it *from the air it pumps in.* No heat in the air when it's below zero? Oh, yes it has; it has heat that it gives up until it liquifies at 312 degrees below zero, and still has heat that may be extracted and the liquid air made a solid.

"If the air is compressed slowly, lots of the heat will be absorbed back to the surrounding atmosphere before it leaves the main reservoir, but if you run the pump at a pretty quick speed the air is still warm as it passes back through your brake valve.

"That night, when 31's engine backed into the train shed at Corning, the weather was very cold, the sky clear and the stars shining so brightly it wouldn't seem there was a bit of moisture in the air; but every bit of exposed metal was white with a coat of frost—where did the moisture come from to make that frost? From the same place it came from to make the "sweat" drops on the outside of that ice-cold lemonade pitcher, the hottest, *dryest* day last summer—from the atmosphere; the air was filled with it.

"When the engine coupled to the train it was nearly leaving time, and you know you want to go out from that station with full brake power through the 'checkerboard,' but there was only a few minutes to get it, besides trying the brakes, and the air pump had to hustle.

"The nine-and-one-half-inch pump makes pressure pretty quick, and think of the amount of air she was throwing per minute, hot, into the main reservoir. The walls of the main drum warmed up, and so did the inside of the piping back through the engine and tender. By the time the air pressure had passed through the first car, it had become cool, and now the moisture began to deposit itself. There are a good many slow-downs and stops getting out through that city; the brakes were constantly used and recharged—with more moisture—but still getting a little warmth from rapid compression until finally, when once out of town the limit of 70 pounds train line pressure was maintained with the feed-valve cutting off the supply; not much more warm air coming back now, and the water in the train line and triples commenced to freeze; at the next stop they had trouble.

"You are glad that you understand it, but you are all further interested in the remedy for it? That's easy, but it is not so easy to enforce its application. The heat from compression can be expelled by placing a cooling coil between the pump and main reservoir; the cooled air pressure would drop its water in the main drum, where it would be drawn off; but it is out of the question to talk of getting that coil put in, so we will have to head the water off after it gets past the brake valve, and the tender drain-cup is the best place for the enginemen to go after it. While she is pumping-up in the train shed, jump down and bleed it, and at every stop getting out through town; it may save time later on. Better take the torch along, as the little bleed-cock will freeze up.

"The next night after it all happened, I rode out of Corning on 31 with Tracy—he's a freight man—only extra on that engine—and he and his fireman kept jumping down and taking a drag at that drain-cock at every little stop—without any suggestion from me, either. When they stopped at Lakeside for water, Tracy placed his brake valve on lap, jumped down and held his torch to the drain-cup till he could get her to let the water down; then he ran ahead and opened the train line stop-cock by the cylinders, letting a rush of air out of the pilot house. After doing that and closing the tender bleed-cock, he was up on the engine before the fireman had finished taking water; and Tracy's air didn't freeze up. The point to this is, that while, of course, the drum should be bled every trip, don't

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think that it catches a great amount of the water, and don't think that a dry main reservoir indicates a dry train line.

WILL W. WOOD.

♣ ♣ ♣

Boiler Explosions.

"I hear," said Charley Smith, as he sat down on a waste box, "that one of the big 'liners' burned its crown sheet at Harris the other day, and the strange part of it is the boiler did not explode."

"Then you think, according to that remark, that when the water gets low in a boiler that there will be an explosion?" asked Andy Johnson, as he sat down on the bench where idlers in the Talcott roundhouse usually congregated.

"No, not exactly, but what I do mean is this: Every time there is a boiler explosion it is caused by low water. Why doesn't the rule work both ways, and every time there is low water have a boiler explosion?" replied Charley Smith.

"Well, what causes boiler explosions in your opinion?" asked Andy Johnson.

"I don't know as my opinion is worth much, but it is that the material on the outside—from some cause—is too weak to stand the pressure from within," replied Smith.

"The first thing to do," said Johnson, "is to find the causes and remedy them and avoid an explosion, and not wait until one occurs and then charge it to low water. While at times this is the cause, as a rule it is absurd, as was the practice in the early history of steam boilers, to charge their explosion to some unknown and obscure agency, and it is far more unjust, for it often puts blame on enginemen when there should be none."

"You do not believe, then, that low water will cause a boiler explosion?" asked Smith.

"I did not say that, but I do not believe that all boiler explosions, or even 25 per cent. of them, are caused by low water, although all of them are charged to that cause. It is an easy explanation and shifts the blame where it can not successfully be combated. If a crown sheet was exposed and was very hot, and the water that was in the boiler should prime or lift and part of it go over the crown sheet there would be generated a pressure—gas or steam, whichever you please to call it—that would probably cause an explosion, or if the crown sheet became so heated that it would lose its power of resistance, then the pressure would force the sheet from its fastenings. It takes some little time for a sheet bare of water to reach this degree of heat. There are plenty of cases on record where locomotives have been fired up without water in the boiler and, the fact having been discovered, the fire has been knocked out and after the boiler and firebox had cooled down they were gone over by a boilermaker with a calking tool and the engine was placed in service again without discoverable injury and no loss, except the use of the engine and the boilermaker's time.

"If this holds good for an engine under these conditions, why does it not apply where there is low water, if the crown sheet is not superheated or the water in the boiler primes? Your feed water enters at the check and gradually rises, cooling the sheet by degrees as it does so. The cooling would probably cause the boiler to leak; it might even cause cracks if the iron was heated so hot as to destroy the life of the iron."

"To what then do you attribute the majority of boiler explosions if not to low water?" asked Smith.

"To weakness of material from various causes. Take the bracing of the crown sheet, for example. When the engine is about to be turned out of the shop it is subjected to a severe hydraulic boiler test to discover any weakness it may have in its makeup. This done, the shop has done its whole duty. There will be an occasional staybolt inspection and there it stops. The boiler may be out two years, but the crown bar braces will be left severely alone; some of these might be broken and so covered with lime and scale from the water as not to be seen, and may even sound solid to the blow of a hammer. The brace-pin may be worn or half broken, and unless it is taken out it could not be discovered, and the same may be said of defects in the braces. 'Out of sight, out of mind' applies too often to parts of a boiler that can not be seen.

"Thorough inspection of boilers, boiler braces and staybolts will do much to avoid explosions, and in these days of pooled engines care should be taken by all concerned to see that the water glass and gauge cocks are kept in good condition."

"If they are not, they speak for themselves," said Smith, "and give you warning that they are out of order."

"Gauge cocks will, but water glass cocks are deceiving and should be watched closely," replied Johnson.

"You seem to lay great stress on the

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crown sheet giving way; why more on that than other parts of the boiler?" asked Smith.

"Any part of a boiler may give out at any time through weakness caused by ordinary wear and tear, or faulty design or construction, but that a large surface—flat or nearly so—is more liable to rupture than a cylindrical one, is evident, and on the crown sheet falls the charge of low water, and that is why I spoke more particularly concerning it," replied Johnson. "I had an experience a few weeks ago, that while I did not scorch a crown sheet I learned a good lesson, and for a time I was in a fair way to cause a serious delay to an important train. If I had been careless in watching the water level in the boiler I should probably have done worse and fared worse. I went out on Bill Hines' engine on No. 30—you know that is a time freight and they want the time made. Bill always does his own pumping and so I used his injector and it worked fine until we were going up Smoky Hill when it quit on me without warning. I worked the engine pretty hard for the hill and the water was down to about half a glass when I tried to start my injector. By no means could I get it to go to work. Steam blew out of the overflow, and from the feeling of the steam ram when I opened or closed it I was satisfied that the valve controlling the main steam jet had become disconnected from the handle stem.

"I was only annoyed by this. I told the fireman to put his injector on and I closed the boiler head steam valve to my injector, intending to take the packing box and valve out at my leisure and connect the valve to the stem and put the whole back in and the injector would be ready again for use. Here a new trouble presented itself. The fireman could not get the left injector to work. I went over on his side and tried the injector with no better success than he had. It is wonderful how fast water gets away from you when you haven't much in the tank or in the boiler, and can't get any. The water was so low by this time that I was compelled to stop, and I had to stand on my tip toes to see it after everything was quiet, but as we had a strong gauge of water I was safe enough, and the next thing was to fix the right injector, for the left one I felt certain was beyond repairing on the road. I took the packing gland and main steam jet rod out and there sure enough was the valve disconnected and fallen down in front of the seat. I put it on the stem, tightened the jam nut, put the whole back in the injector and it went to work as soon as I tried it and caused me no more trouble. We lost fifteen minutes, which, later on, was made up, so there was nothing said about it. If we had had a train that I could not have started on the hill I suppose there would have been some explanations to make.

"On arrival I reported the left check valve stuck down, and that proved to be the trouble. The left injector not having been used for some time the check valve had became corroded fast to the seat and it had to be forced loose."

"What lesson did you learn from that occurrence?" asked Smith. "An injector failure might occur with any one and when it does, all there is to do is to go ahead and fix it, and if you can't, kill the engine and tell them why."

"Very true," replied Johnson, "but if you try both injectors and know that they are working before you start out you have reduced the danger of an injector failure to a minimum, for it is hardly likely—if they are both in *good working order*—that both of them will fail you at the same time, and I learned right then that the only right way to do is to try both injectors and know they are in good order before you start out. If they are not in good order and you can not get them repaired it relieves you of the responsibility for their failure on the road later on. For my part, I intend to practice it hereafter at all times."

"It would be a good practice for all of us," said Smith, as he arose from the waste box on which he was seated and went over to his engine, for it was time for him to get her out of the house.

W. L. FRENCH.

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Pump Cylinder Wear.

It is generally well known that air pump cylinders wear most rapidly at the ends, this being because the greatest amount of work is performed there. The pressure against the air piston will not exceed 20 or 25 pounds at midstroke, but steadily and rapidly increases from this on until the main reservoir pressure is exceeded and the discharge valves permit the air to escape. The steam pressure in its cylinder rises proportionately throughout the stroke, keeping just enough above the air to overbalance all resistance and drive the pump at the desired speed.

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It is noticed occasionally, however, that a cylinder is worn oblong or oval. While this may be explained in some cases by the two cylinders being sprung out of line through drawing the pump lugs down to a badly-fitting bracket, yet the writer once observed another cause which it may be of interest to describe.

An 8-inch pump had been reported by the engineer as not supplying sufficient air and a test demonstrated that the air cylinder was in very bad shape. After obtaining 100 pounds pressure in the main reservoir, the pump was stopped and the air head was quickly removed. Then, by running the pump very slow a strong blow was noted past the piston, but *all* at one place. After marking this point on the piston and removing the latter it was found that the openings in both rings were very large and were at this point, one immediately above the other.

The cylinder was perfectly dry, the side of its wall and of the piston opposite from the location of the ends of the rings showed recent, heavy wear while the reverse did not, the removed cylinder head was well coated with the ground off particles of cast iron and on the worn side of the piston these had so filled in about one ring as to render it solid, and, with the wear, remove all indications of there ever having been a groove there.

As there was ample evidence that the piston could travel true so far as other causes were concerned, the only explanation of the wear all taking place on the side opposite from the ends of the rings is that the leakage at the latter point in passing the piston forced it heavily toward the other side of the cylinder. The excessive heating resulting from hard service and a bad order cylinder, with lack of lubrication furnished the other requisites for rapid wear.

F. B. FARMER.

Terminal Brake Test of Engine.

It has been said that it does not require a first-class engineer to do nice braking with brakes in good order. While not strictly true, yet it emphasizes the fact that good order brakes are the first requisite for good braking. As defects will develop they should be promptly located, reported and remedied. To accomplish the first, certain tests are necessary, and as recent inquiries indicate an awakened interest in this feature, the following terminal brake test of engine is given:

Air Pump.

1. Note whether with ample steam pressure and throttle the pump will, when working against about 90 pounds pressure, and not controlled by the governor, run steadily and sufficiently fast, observing whether there is any unusual click or pound.

Air Cylinder Test.

2. Raise the pressure to about 90 pounds and open the air cylinder oil cup. Then, stop the pump and, when the piston rod is seen to be at rest, see if any air is blowing out of the oil cup. If so, there is a leak from the main reservoir past the air valves or their cages into the cylinder.

3. If there is no such leakage, start the pump and, with the oil cup yet open and the same main reservoir pressure, regulate the speed between 25 and 30 single strokes or exhausts per minute. Now, *on each down stroke* hold a finger just above, but not on the oil cup, to note if any air blows out. There being no back leakage from the main reservoir, any such blow at the cup will be leakage past the air piston packing rings, which should be reported if it appears to exist for nearly one-fourth or more of the stroke.

4. In all of these tests it is important to have about 90 pounds air pressure, and, in the last, that the stroke be regulated as instructed.

Air Gauge.

5. With air pressures near those ordinarily carried, place the brake valve handle in full release. If the gauge hands are correct they will then indicate the same pressures. Where they vary 3 pounds or more, report that the gauge be tested.

Feed Valve.

6. With the Westinghouse Standard type of engineer's valve in running position, ample pump speed to keep up the pressures and the driver brake auxiliary reservoir bleeder open, note whether 70 pounds train pipe pressure is maintained, as it should be; if not, report that the feed valve be regulated.

7. Next, close the driver brake bleeder, and if the train pipe pressure raises 5 pounds or more, report that the train pipe pressure leaks up with light engine.

Pump Governor.

8. During the test just described, note what, if any, variation takes place in the main reservoir pressure by reason of the pump governor action.

9. With all other engineer's valves

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than the standard type, place the handle in full release and, when the governor is regulating the pressure, note how much, if any, variation takes place. Where with any engineer's valve the governor varies to exceed 3 pounds, report *the fact.*

Engineer's Valve.

10. With standard train pipe pressure make a 10-pound service reduction, return to lap and note whether any increase in train pipe pressure follows. If so, report *the fact.*

Driver and Tender Brakes.

11. With 70 pounds train pipe and auxiliary reservoir pressure, make a 20-pound service reduction, place the handle on lap, go quickly to one driver brake cylinder and note carefully whether the piston rod moves back at all. If so, report that driver brake leaks off, stating where the leak or leaks exist.

12. Test and report the same for the tender brake. The piston travel of this brake should be reported for adjustment, stating the amount existing, when over 8 inches or less than 5½ inches.

13. Each of the driver brake pistons should travel about the same amount, and when *that of the two combined* exceeds 10 inches, report for adjustment. The shortest travel, with that of the two sides combined, should not be less than 4 inches for cam brakes and 7 inches for others.

Triple Valves.

14. Note during both application and release whether there is any leakage at the triple exhaust port, reporting any such.

Other Leakage.

15. With the air pump working against the governor and the engineer's valve in running position if the standard valve and full release with all others, note the number of single strokes or exhausts per minute required to maintain the pressure. With a pump in good or fair condition if the number be over 20 excessive leakage is indicated and should be remedied.

Air Sander.

16. Next, open the sander throttle until the sand flows properly on both sides, then again note the number of single pump strokes per minute required to maintain the pressures, the brake valve handle yet being in the same position. If the number over that required to supply engine leakage alone exceeds 20 there is air leakage in the sanding apparatus, or the latter is not in proper condition. The exact trouble should be located and remedied or reported.

F. B. FARMER.

Talks with an Air Brake Instructor

By E. G. Desoe

Dialogue No. 16—Nine and One-Half-Inch Air Pump.

Instructor.—I expect that you want to talk about the 9½-inch air pump this morning?

Student.—Yes, sir, that is what I came up for. I understand that the principal advantage with this pump over the 8-inch is in its being of greater capacity, and I would ask how much greater capacity it has?

Instructor.—In answering your question I do not think I can do better than to give you a test which I understand was made to show the difference in the capacity of these two pumps. The steam pressure used in these tests was 140 pounds, and the main reservoir was 26½ x34 inches outside measurement. About 8¾ cubic feet capacity. The 9½-inch pump required 38 seconds to compress the air from 0 to 70 pounds and the 8-inch pump required 68 seconds. From 20 pounds to 70 pounds the 9½-inch pump required 27 seconds and the 8-inch pump 50 seconds. The air cylinder of the 9½-inch pump will contain about 708.82 cubic inches of free air, while the 8-inch pump's air cylinder will contain only about 408.64 cubic inches. From this it will be seen that the 9½-inch pump is about twice the capacity of an 8-inch pump with the same steam pressure.

Student.—What is the stroke of the 9½-inch pump?

Instructor.—The stroke is 10 inches, and the air and steam cylinders are both of the same diameter, 9½ inches.

Student.—I should think there would be some advantage in having the steam cylinder of larger diameter than the air cylinder, like the 8-inch pump.

Instructor.—I do not think that would be of any advantage today. When the 8-inch pump was designed engines did not

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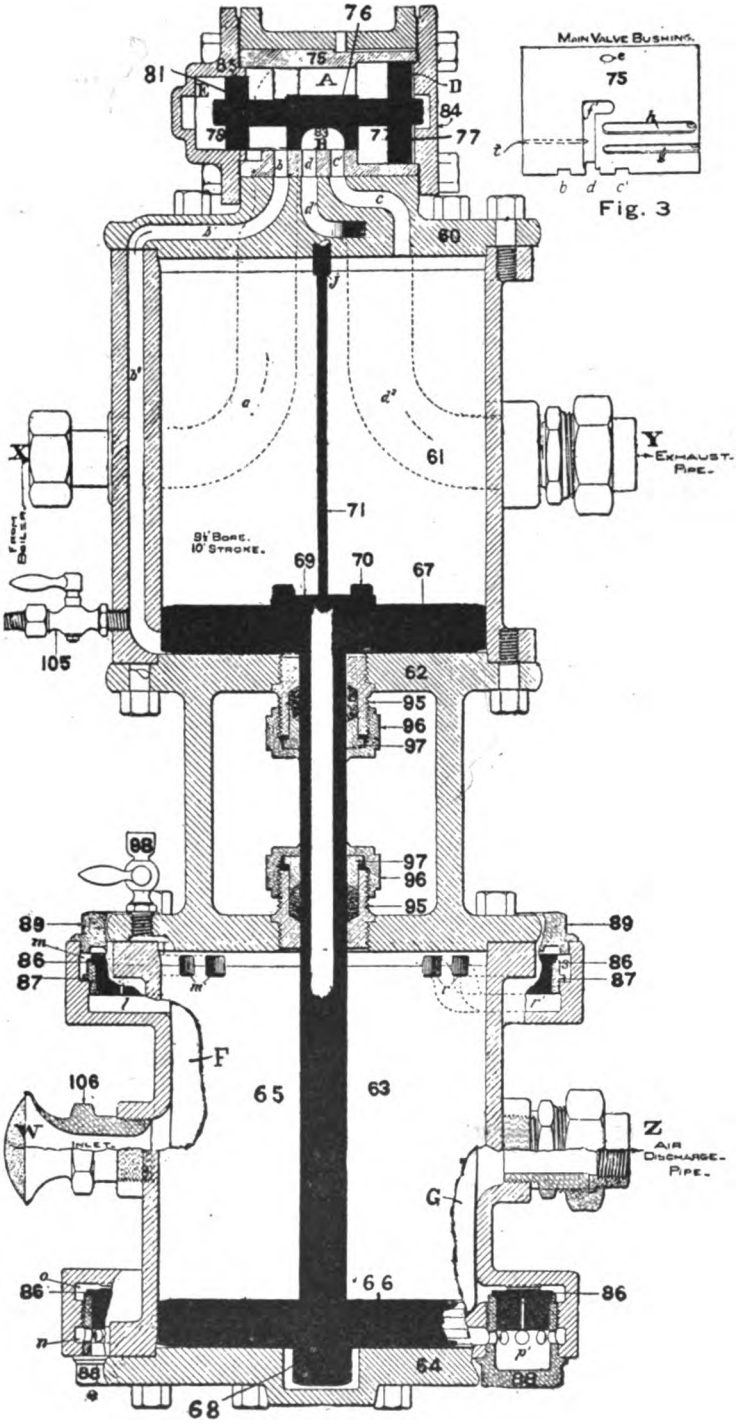


FIG. 1. NINE AND ONE-HALF-INCH AIR PUMP

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Index to Parts of Nine and One-Half-Inch Air Pump

60. Top head.
61. Steam cylinder.
63. Air cylinder.
64. Lower head.
65. STEAM PISTON AND ROD.
66. AIR PISTON.
67. Piston packing rings.
68. Piston-rod nuts.
69. Reversing-valve plate.
70. Reversing-valve-plate bolt.
71. REVERSING-VALVE ROD.
72. REVERSING VALVE.
73. Reversing-valve-chamber bush.
74. Reversing-valve-chamber cap.
75. Main-valve bush.
76. MAIN VALVE PISTONS.
77. Large main-valve piston.
78. Large main-valve-piston packing rings.
79. Small main-valve piston.
80. Small main-valve-piston packing ring.
81. Main-valve stem.
82. Main-valve-stem nut.
83. MAIN SLIDE VALVE.
84. Right main-valve cylinder head.
85. Left main-valve cylinder head.
86. AIR VALVES.
87. Air-valve seat.
88. Air-valve cage.
89. Valve-chamber cap.
95. Stuffing box.
96. Stuffing-box nut.
97. Stuffing-box gland.
98. Air-cylinder oil cup.
105. Drain cock.
106. Air strainer.

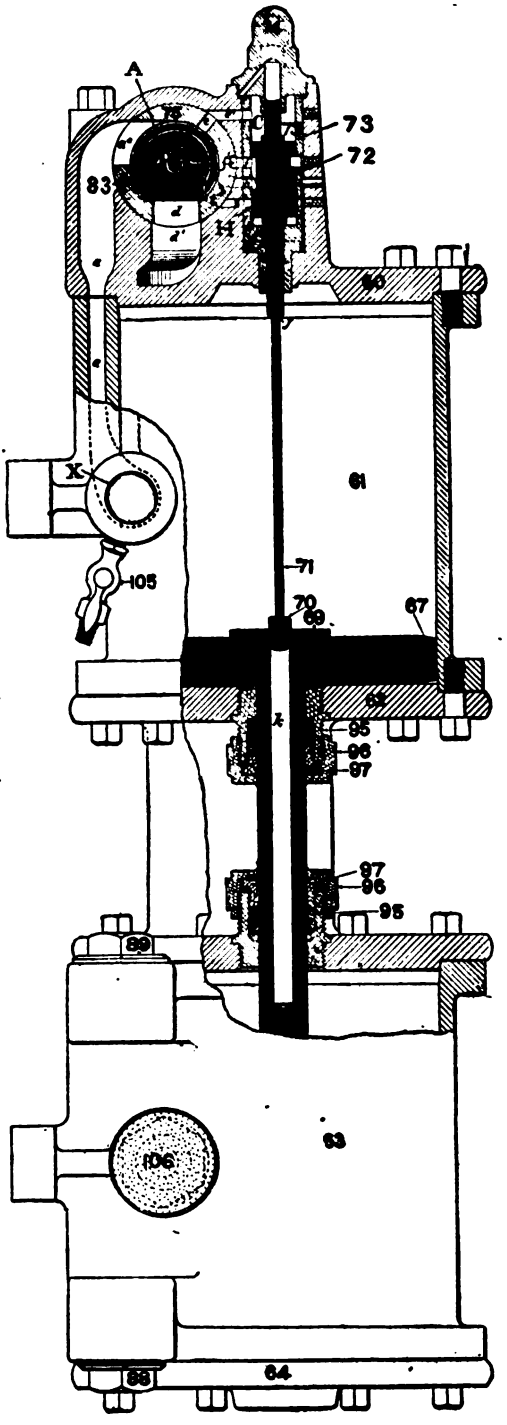


FIG. 2. NINE AND ONE-HALF-INCH AIR PUMP

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carry much, if any, over 125 pounds steam pressure, but today there are very few engines that do not carry at least 200 pounds steam pressure.

Student.—Is there any advantage in the mechanical construction of this pump over the 8-inch?

Instructor.—Yes, all the valve motion, which is much more positive, is contained in the top head, and by changing the head a repaired valve motion may be substituted for one that is out of order. The air valves are all of the same size and therefore interchangeable, they are also located so that they can be changed much easier than with the 8-inch pump.

Student.—This pump must weigh considerably more than the 8-inch.

Instructor.—It weighs about 500 pounds. The first thing that I would like to have you do, so that you may understand the operation of this pump, is to name the working parts, which you will find shown in heavy black in the two sectional cuts, Figs. 1 and 2. Are you prepared to do so?

Student.—I think so, for I have been studying the operation of this pump since I was up here before. Steam piston and rod; air piston; reversing-valve rod; reversing valve; two receiving air valves, and two discharge air valves. These parts are the same as those in the 8-inch pump. I mean that we have these same parts in the 8-inch pump. Then there is the main slide valve, and the main-valve pistons.

Instructor.—The main-valve pistons are generally called the "differential piston" among the men. Do you know the duty of this differential piston?

Student.—I understand its duty is to move the main valve back and forth.

Instructor.—And this main valve, what is it like?

Student.—It is a common D slide valve, the same sort of valve that is used in the steam chest of locomotives.

Instructor.—How about the ports in the main valve seat?

Student.—There are three, one leading to the lower end of the steam cylinder, another to the upper end, and the third to the exhaust pipe.

Instructor.—When facing a pump, which one leads to the lower end of the cylinder, which to the upper end, and which to the exhaust pipe?

Student.—The left hand one leads to the lower end. The right hand one to the upper end, and the middle one to the exhaust pipe.

Instructor.—Where is steam admitted to this pump?

Student.—On the side, the same as with the 8-inch, but with this one it is conducted through port *a*, Fig. 2, to the chamber between the main valve pistons (chamber *A*, Fig. 1).

Instructor.—When facing the pump, which one of the main valve pistons is the larger?

Student.—The right hand one I should say is considerably the larger.

Instructor.—Do you understand how this differential piston moves the main valve back and forth, so as to cause steam to be admitted to first one end of the cylinder and then the other?

Student.—No, I do not understand clearly this part of it.

Instructor.—The larger main valve piston is 3 inches in diameter and, therefore, has an area of 7.068 square inches. The smaller one is 2⅛ inches in diameter, and has an area of 3.546 square inches. The difference in area being 3.522 square inches. The outer end of the small piston 79, Fig. 1, is at all times open to the exhaust pipe, so that no pressure can accumulate due to leakage by the rings. Now without any pressure on the outer end of the large piston, 77, Fig. 1, with steam admitted to the chamber between the pistons, which way would the main valve be moved?

Student.—It would be moved to the right.

Instructor.—Yes, for with 100 pounds steam pressure there is about 352 pounds more force being exerted to move it to the right than what there is to move it to the left. Now if the same pressure of steam is had on the outer end of the large end of the main valve, as there is in the chamber between the two ends, which way will the main valve be moved?

Student.—I think it would be moved to the left.

Instructor.—That is right. The steam pressure on the outer end of the large piston will balance that in chamber *A* acting on the other side, and the power to move the differential piston and main valve is the steam pressure in chamber *A* acting on the small piston, which, with 100 pounds steam pressure, is about 354 pounds. You should understand then to cause the main valve to be moved back and forth it is only necessary to admit and exhaust steam from the outer end of the large main-valve piston. Do you know how this is accomplished?

Student.—I expect that this is accomplished by the reversing valve.

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Instructor.—That is right. You will remember that with the 8-inch pump, steam was admitted by the reversing valve to the top of the reversing piston when the reversing valve was pulled down to its lower position. In this pump steam is admitted to the outer end of the large main-valve piston by the reversing valve when it has been moved to its upper position, and when it is moved to its lower position it closes the port which admitted the steam and opens the exhaust port so that the pressure is permitted to escape. Just the reverse of the 8-inch pump. I suppose you understand that this valve is moved up and down by the reversing-valve rod the same as it is in the 8-inch pump?

Student.—Yes, I understand that it is.

Instructor.—Do you know how the reversing-valve chamber is supplied with steam?

Student.—There is a port connecting this chamber with the chamber between the main valve pistons.

Instructor.—That is right; this port is shown in Fig. 2, marked *e*. I will now trace the movement of the pump. Steam being admitted, the differential piston is moved to the right, carrying with it the main valve which uncovers the port leading to the lower end of the cylinder, the position in which it is shown in Fig. 1. The main piston is now moved up, and when it has nearly completed its stroke the reversing-valve plate on the piston strikes the shoulder on the reversing-valve rod and moves it and the reversing valve up so that the reversing valve uncovers the port, admitting steam to the outer end of the large main valve piston, and it is now moved to the left, carrying the main valve with it, uncovering the port leading to the upper end of the cylinder, closing the port to the lower end, and opening the port from the lower end to the exhaust pipe by the cavity *B* connecting the exhaust port *d* with this port. With steam pressure on top of the main piston it is now moved down. When it has nearly completed its stroke the reversing-valve plate engages with the knob on the end of the reversing-valve rod and pulls it and the reversing valve down, so that the reversing valve now has the port which admitted steam to the outer end of the main-valve piston closed, and exhaust port from this end of the piston open to the exhaust pipe. The differential piston and main valve are again moved to the right, again admitting steam to the lower end of the cylinder and exhausting it from the upper end by the cavity *B* connecting exhaust port *d* with the port from this end of the cylinder.

Student.—I believe that I now understand thoroughly how this pump operates, that is, the steam end, and I expect that the air cylinder compresses the air in the lower end of the cylinder when the piston is moved down, and that in the upper end when it is moved up, the same as the 8-inch.

Instructor.—Yes, air is compressed with each movement of the piston up and down, but the discharge and receiving valves are located differently than in the 8-inch pump. The discharge valves are on the right-hand side of the cylinder, and the receiving valves on the left-hand side, one on each of the four corners. Air is taken in at only one place on this pump. That is through strainer *106*.

Student.—What lift should the air valves in this pump have?

Instructor.—The lift of all the air valves should be the same, about 3-32 of an inch.

This pump, as well as the 8-inch, should be started slowly, so as to allow the condensation to escape, and sufficient air pressure to accumulate so as to form a cushion. The drain cocks *105* should now be closed. These cocks should always be left open whenever the engine is to be left standing with the pump shut off. This is especially important in cold weather for, if it is not done, condensation due to slight leakage of steam will collect and freeze and in all probability burst the cylinder. On the road the pump should be run so as to obtain the air pressure needed, but should not be run at a rate of speed exceeding 150 single exhausts per minute, except in emergency when controlling the speed of a train down a grade, for it will cause the pump to heat, and damage it. The steam cylinder should be oiled from the lubricator. When first starting the pump permit 10 to 15 drops to feed rapidly and afterwards from 1 to 3 drops per minute, according to the work the pump is doing. The air cylinder should be oiled any time when the working of the pump indicates that it needs it. Valve oil should be used, and it should be oiled through the air cylinder oil cup *98*. The cup should first be opened as the piston is moving up, so as to blow out any dirt in it. The cup should then be filled with oil, and opened when the piston is making the down stroke. If the pump is run very slowly this can be done all right. The swab on the piston rod should be kept well lubri-

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cated, and the stuffing box nuts kept screwed up so that there will be no escape of either steam or air. When it is found that the stuffing boxes can not be made tight by screwing up the nuts they should be repacked. I do not think of anything else that I want to tell you today about this pump. Have you any more questions to ask?

Student.—I do not think of any more now.

Movement of Trains

By H. A. Dalby

Signaling on the Pennsylvania.

Mention has been made in these columns of the Grafton Semaphore on the Pennsylvania Lines West of Pittsburg. The position of this signal when indicating "proceed," unlike some other semaphores, is in a vertical position, as illustrated in the accompanying figures. This makes a wider difference between the "stop" and the "proceed" positions than

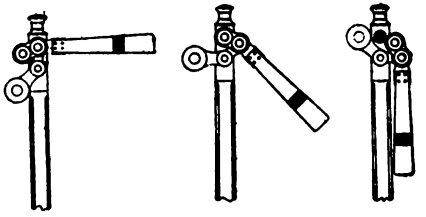


Fig. 1. Block Signal

with the ordinary type, in which "proceed" is indicated by a diagonal position.

In interlocking (yards, draw-bridges, railroad crossings, etc.) these two positions are all that are used, but in block signaling the inclined position is used for "caution," thus making each semaphore act as both home and distant signal in the same manner as where a home and a distant arm are located on the same post, as is common in many systems of blocking.

When a train is in a block the signal at the entrance to that block is, of course, in the "stop" position, while the signal at the entrance to the next block in the rear is in the "caution" position.

A train approaching a block signal in the "stop" position knows that a train is in the block ahead. If the signal is in the "caution" position the block about to be entered is clear but the second block is occupied. If the signal is in the vertical or "proceed" position it indicates that two blocks in advance are clear. The use of one signal instead of two is, of course, an important item when cost is considered.

Readers of the Magazine will remember that the Mozier three-position signal indicates "caution" by the upward inclination of the arm, but we do not know of

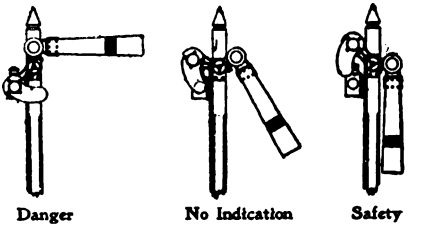


Fig. 2. Interlocked Home Signal

its being used as both home and distant signal, as is the signal we have described. We shall be glad to hear from any readers who can offer any more information on this subject.

As block signals and interlocking signals are of the same form, it is necessary to distinguish them. For this purpose there is a rule that for block signals only one arm shall be on a post, while for each interlocking home signal there shall be two (and only two) on a post. Where the interlocking home signal controls a junction, the upper arm governs the main or high-speed route and the lower arm all diverging routes. When but one arm on a home signal is necessary, the rule pro-

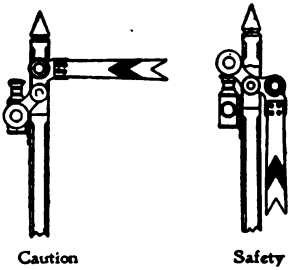


Fig. 3. Interlocked Distant Signal

vides that a "dummy" arm shall be placed below the regular signal, shall be of the standard form, always stand in the hori-

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zontal position and show a red light at night.

Distant signals are used in connection with interlocking home signals in the usual way. All signal blades, distant, home and block, are painted yellow on the face and white on the back. It is claimed for this that it avoids the inconsistency of a train passing a red signal even though the position may be such as to indicate "proceed." This opinion, however, is not shared by all officials, as there are a great many systems where the home semaphore arms are painted red.

As interlocking signals show but two positions, horizontal and vertical, each is provided with a metal shield as shown in Fig. 2, which obscures the light while the blade is traveling between the two positions, thus preventing the display of any signal at night unless the blade is in the corresponding position. This subject was fully treated in the Magazine for September, 1902, page 365.

* * *

In Case of Accident.

Accident reports were the subject of an interesting discussion at a recent meeting of one of our prominent railway clubs.

It can easily be seen that in case of accident on the road, the first report is by far the most important and the facility with which the matter is handled or the track cleared, if such be necessary, depends largely on the information received at the dispatcher's office in this first report. That the report be as near what is wanted as possible, therefore, is a matter of no small importance. Much time is often consumed in asking questions which could be saved if the men on the train were properly instructed in this regard.

In case of engine failure we can not, of course, advise enginemen as to the manner of reporting mechanical trouble, but there are certain things which the dispatcher would like to know and in many cases the engineer can tell him. The first thing is about how long it will take to make the necessary repairs and get started, then whether the engine can run itself or not, how much tonnage can be handled, if any, and the probability with regard to speed. In the case of hot boxes, hot pins, lack of steam, etc., while we know they are very uncertain, yet if the engineer can give an idea as to whether the trouble will likely continue all the way to the terminal or whether he has remedied it so that he thinks he can make the usual time, it will be thankfully received. Men on the train should remember that the man in the office is guided solely by the probable time that will be made, and train movements are arranged accordingly. This is in accord with the principle, which we always advocate, of telling the dispatcher all you know. There are times when he would make better moves and consequently would be less blamed if he were in possession of all the facts which might be given him.

In case of derailment, of course it is impossible to construct a formula which will apply to all cases, and the exercise of some judgment is necessary on the part of those making the report. In general, it was brought out in the meeting to which we refer, that the most important facts are the location of the accident, number of cars involved and whether loaded or empty, the condition and position of the engine, how many cars on each side of the trouble, together with the amount of material and the number of men needed to clear the track and to repair the latter if necessary. To give an idea of what is needed in the way of information a message reporting an imaginary accident was read by one of the members. It was as follows:

"Train No. 74 has 5 loads and 3 empties derailed on fill two and one-half miles east of Scotland. Two cars lumber crosswise of track, three cars brick turned over, fouling main track. Three empties clear of main track down embankment. 16 cars east and 7 cars west of derailed cars. Want wrecker to clear track which will take about three hours. Need 50 ties and 4 rails. Brakeman Jones, in jumping from train, was caught by a derailed car and has left leg crushed. Left in charge of Dr. Brown.

"Accident caused by broken flange.

"_____, Conductor."

We believe it is the rule on almost every road that in case of personal injury the conductor obtain the names of witnesses, if possible, also note all the facts in connection with the accident, stating what was done with the injured person, etc.

It was the opinion of nearly every one present that the printed form of accident report did not answer the purpose for the first report as well as a message, but should be made later and filed for reference. Some favored a blank form containing a few questions of the most importance to be used as a first report, but others considered that a message, if carefully prepared, served the purpose better.

That in which the dispatcher is most directly concerned is keeping trains mov-

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ing. He sometimes meets with difficulty in case a train is delayed at a point distant from the telegraph office. The conductor comes to the office, leaves a message stating the nature of the trouble, and when the dispatcher is made acquainted with the facts he often finds it necessary to move other trains against the one which is delayed, but when he attempts to put out an order finds that the conductor has left the telegraph office, and some time may be consumed in getting him to sign the order, with a consequent delay to other trains. To avoid delay of this kind the following rule appears in a certain code:

"Whenever an accident occurs to a train between stations or away from a telegraph office, so that the assistance of a wrecking train or engine is required, a message, signed by both the conductor and engineman, must be sent from the nearest telegraph office to the superintendent, giving the location of the train as nearly as possible and saying that the train or engine will not be moved until the required assistance has arrived."

A message thus signed is equivalent to a hold order, and other trains may be moved if necessary, without delay.



Changing Time Tables.

Questions 84 and 85 this month bring up the vexed question of change of time tables. These are the most perplexing of all train rule questions. They have caused more argument than all others combined and a large part of this argument has never been settled.

Rule 4 (B) of the Standard Code is in almost universal use throughout this country, because it seems to be, all things considered, the most efficient. According to this rule a train of the preceding time table assumes the schedule of the corresponding number on the new time table. When the new time can be easily assumed and no complications arise this seems to be the best rule by which to work. But there are many situations for which the language of the rule does not provide and to which it is even difficult to apply the principle. Again, there are cases which the rule may *seem* to cover, but different persons will make different applications, so that experience has shown that the rule is by no means automatic and that it will not stand the test of all possible situations. We will again refer to question 32 in the Magazine for May 1902, which we answered to the best of our understanding, also to Question 71 in the November number, in which an exception was taken to our reply. We were not surprised at the criticism, in view of the amount of controversy which has been occasioned by the rule.

Doubt has arisen in cases where a train has been run "Daily" on the old time table and "Daily except Sunday" on the new, it being on the road when the new time table took effect; cases of the terminus being changed, the run being made longer or shorter; an instance where the run is completed on the last day of the old time table and the new one, on taking effect, shows the same train only an hour or two late at its initial point; and in Question 85 of this issue where the train on the last night of the old time table is annulled, the question arises whether the same train on the new time table is annulled. And in regard to most of these questions we are free to confess we do not know.

The American Railway Association was once asked this question:

"Train No. 1 under the old time table leaves B at 10 a. m. The new time table takes effect at 10 a. m., June 1st. On the new time table No. 1 leaves B at 9 a. m. and C at 10 a. m. Does the new time table provide for No. 1 between B and C on June 1st, or is the train annulled? If annulled, is it annulled only between B and C, or is it annulled from B to the end of the division? If not annulled, should No. 1 consider itself one hour late at B and govern itself accordingly?"

Their reply was as follows:

"In such an instance, the plain duty of the superintendent is to conform to Rule 302, and issue special instructions to provide for such a contingency, as it can only affect the train for one day."

(Rule 302, here referred to, was in the Standard Code at that time and was as follows: "Special instructions, given by proper authority, must be observed while in force.")

Had the question been put to us we should have thought we understood the rule well enough to say that No. 1 could leave B at 10 a. m. on the new time table, being then one hour late, but when those who formed the rule decline to authorize that understanding we do not feel warranted in expressing an opinion. We simply speak of this to show that there are some unanswerable questions in connection with the rule.

Numerous attempts have been made to modify the rule or make additions which

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will cover certain contingencies, but we do not know of any which will satisfactorily answer all the questions which have been raised. The rule seems to be a good one for "fair weather," and we favor its use, but we should take no chances on any one's understanding at the time of change if there were anything in view more than a simple transferring of trains on the road from their schedules to those of corresponding numbers on the new time table. We should fall back on the assertion of the American Railway Association that the proper officer should make provision for any possible questions which might arise.

The Standard Code provides another optional form of this rule, and this is the only one of which we know that acts positively and leaves no loop-hole for doubt or misunderstanding. Under this rule, when a new time table takes effect, every regular train on the road is dead and there is no train due to run until it is due to leave its initial point after the time table takes effect. We like the principle of the rule but from the standpoint of the dispatcher we can vouch for the fact that it is the cause of a large amount of work which can be avoided by the use of Rule 4 (B). It necessitates running each train on the road as an extra, and the dispatcher must, in many cases, begin his work of providing for trains that are to die, several hours before the change takes place.

We strongly favor Rule 4 (B), but stipulate that some one must be on hand to settle any possible questions until the change to the new time table is completely made.

Questions and Answers

The Westinghouse Air Brake.

Answers by F. B. Farmer.

146. Equalizing Discharge Port Fitting.—"In the November issue of 1902 I notice article 129 under the heading of 'About Westinghouse Brakes,' where X. Y. refers to the absence of the thread in the train line exhaust fitting of brake valve. Mr. Farmer claims this is to prevent piping the noise out of hearing. Now, I would like to know, in case we lost the equalizing reservoir or little drum, which would necessarily involve the plugging of this exhaust fitting in order to use the brake valve in emergency position, how a plug could be made to stay unless there is a thread of some description, as I positively believe a wooden plug would blow out at once.

"Please explain in March issue if possible."—*D. P.*

Answer.—The writer shares your doubt as to a wooden plug being reliable if driven into the unthreaded outer end of the exhaust fitting, but will suggest two safe methods of plugging up this opening in the rare event of it being necessary. Remove the exhaust or angle fitting from the brake valve, plug its inner end with wood and then replace it; or, screw a wooden plug into the opening from which the fitting was removed, leaving the latter out until repairs are made.

147. Reasonable Leakage.—"An engine is equipped with Westinghouse brake, 8-inch pump, is charged to standard pressures (70 pounds train line and 90 pounds main reservoir), no leaks; about how many strokes per minute ought pump to make? Please answer through the columns of the Firemen's Magazine, and oblige."—*O. N. B.*

Answer.—The writer has tested many locomotive brakes to obtain information on this subject, deeming such a simple test one that along with other tests, all engineers should make. It is too often the case where pumps are overtaxed to supply the leakage that the worst of it is on the engine or tender.

With an 8-inch pump the best case observed required but eight single strokes or *exhausts* per minute to maintain the full pressure. This meant not only tight brake and signal piping, "parasite" (bell ringer, air sander, etc.) fittings and standard size of vent port in pump governor, but a pump air cylinder in first class condition. From twelve to fifteen strokes per minute with either the 8 or 9½-inch pump is a fair and satisfactory number, but more should call for investigation and betterment.

As has been mentioned before, the slower a pump is run the more opportunity there is for the air to leak back and forth past the piston in the air cylinder instead of being driven into the main reservoir. Also, if the air cylinder has been overheated or has badly worn rings, particularly those which when new were rather small for the bore of the cylinder,

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the air piston rings are liable to close in as soon as the pump speed becomes low, resulting in the pump compressing little or no air.

Thus it will be seen that the condition of the air cylinder of the pump has a bearing as important or more so than that of the other sources of excessive pump strokes.

When you have found the number of single strokes or exhausts required to supply the leakage from brake and signal, if latter is had, then try the air sander, etc., to see how many strokes each adds. A sander in good condition should not need over about 20 strokes per minute of a 9½-inch pump to throw an ample quantity of sand.

The sander air pipes often get some very bad leaks and improperly adjusted nozzles take an excess amount of air to deliver the necessary quantity of sand.

Often the time when sand is needed to prevent slipping is the one when excess pressure is required to prevent brakes from leaking on and an excessive air drain through the air wasted by the sander is the cause of the sticking brakes which stall the train.

Don't forget to test the air sander along with the other possible causes for excessive pump labor.

148. Equalizing Discharge Action of Brake Valve.—"Why is it necessary to have piston *18* in the G6 engineer's brake valve? Why couldn't the air pass from the train pipe through port *e*, groove *h* and port *k* to the atmosphere instead of passing through port *m* and passages *n* and n^1 of exhaust fitting *22*, to the atmosphere?"—*J. P. H.*

Answer.—The ports *e*, *h* and *k*, being those which in service application discharge the air from above the equalizing piston *18* so as to cause it to rise and discharge an equal number of pounds of train pipe pressure out through *m*, *n* and n^1, the train line service exhaust, are too small to alone cause a sufficiently rapid train pipe reduction to apply the brakes on even a fairly short passenger train. The size of the smallest one, port *e*, is 5-64-inch. These ports could be enlarged so as to make the train pipe reduction without the aid of any other part, as the piston *22*, but to do this would lose the very important equalizing discharge action of the brake valve. It would be going back to the old style of brake valve, three-way cock or B-11 (small brass valve with screw handle) type where discharging the air *fast enough to cover leakage grooves, not so rapid* as to *cause quick action* and *stopping* the discharge *gradually* enough to *prevent head brakes from releasing* and jerking or even separating the train, *depended entirely on the engineer.* With the equalizing discharge type of brake valve he can use full service position with no fear of quick action, but with ample assurance of covering all leakage grooves if enough pounds are drawn off; then, when the gauge indicates the desired reduction, he can return the valve to lap position with the assurance that when the desired train pipe reduction has been completed by the brake valve, it will stop the discharge gradually enough to prevent the release of any head brakes.

With the foregoing rather brief explanation of what the equalizing discharge feature, of which piston *18* is the essential part, is for, it is hoped the study of how the work is accomplished will prove more interesting, particularly as it is evident that you have an instruction book or have access to one.

* * *

Locomotive Running and Repairs.

Answers by W. G. Wallace.

64. Effect of Lowering Diaphragm.—"What would be the effect of lowering the diaphragm on a locomotive? That is, will it make a stronger draft on the fire or will it just cause the draft to be stronger in one place, that is, next to the flue sheet? Some claim that by lowering the diaphragm it contracts the opening and consequently the air passes through the grates and flues at a higher velocity and therefore burns the fire more fiercely.—*A. H. W.*

Answer.—The diaphragm is for the purpose of regulating the burning of the fire. Raising it causes a stronger draft



Fig 1.

in the back end of the firebox and through the upper flues, and lowering it causes a stronger draft in the front end of the firebox and the lower flues. In order to obtain the benefit of the heating surface

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of the flues and the firebox the diaphragm should be adjusted to burn the fire nearly even on the grate surface and cause an even draft through the flues. As water always boils upward it is sometimes an advantage to have the draft slightly stronger through the lower flues. After the diaphragm is adjusted to obtain the above result it should be kept in that position. If the engine does not steam and we desire to increase the draft through the grates and all the flues it should be done by the adjustment of the petticoat pipe and sleeve. Although lowering the diaphragm would contract the opening and increase the velocity of the gases

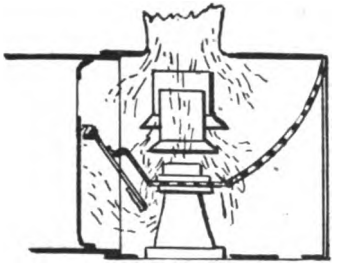


Fig. 2.

through the lower flues and front end of the box, it would be a detriment to the steaming qualities of the engine as we would loose the heating surface of the upper flues. Raising the bottom part of the pipe above the nozzle tip or lowering the top part or sleeve from the base of the stack will increase the draft; raising the sleeve and lowering the pipe will decrease it. Observe Fig. 1 with a pipe and sleeve that extends from the base of the stack to the base of the exhaust pipe, the dotted and broken lines representing the steam passing to the stack. This is not a very large opening for the exhaust steam to expel the smoke and gases from the front end; as they are not thrown out, the vacuum is not formed and the air is not drawn through the grates to fill the vacuum in the front end. In Fig. 2 we have the pipe raised above the nozzle tip and the sleeve lowered from the base of the stack so that the exhaust steam will expel the gases from the front end and a greater volume of air will flow through the grates and fire, promoting combustion. Consider that the nozzle, petticoat pipe, sleeve, and stack should do business in the front end the same as the tubes and the nozzle of the injector, and adjustments can be obtained that will be satisfactory. If the draft can not be made strong enough in this manner then the nozzle should be bushed, but on account of the effect of the back pressure in the cylinders this should only be done when changing the pipe or sleeve will not produce it.

65. Which Wheel Slips?—"The wheels of a locomotive are fixed fast on the axle. The outside rail of a curve being the longest, how do the outer and the inner wheels keep even in rounding a curve? If either slip, how much?"—*E. D. R.*

Answer.—If we were to ask how much surface of the tire of a driving wheel of a locomotive comes in contact with the rail, the answer from the various enginemen would vary. Some would claim that ½-inch, and others 2 inches comes in contact with the rail. Occasionally we would be informed that there was only a fine line or point of contact, which is correct. In order to get more than a point it would be necessary to have a flat spot on the tire equal to the surface of the tire in contact with the rail. Therefore, when the tire is round we have only a small point of contact. Locomotive tires are turned slightly conical from the flange to the edge of the tire, usually ¼-inch, that is, the small diameter of the tire would be ¼-inch less than the large diameter. If the point of contact between the tires on a pair of wheels and the rails were the same distance from each flange the diameter would be the same, the wheels would roll in a straight line. Then when the wheels strike a curve the flanges of the outside wheels are brought close to or against the ball of the rail, making the point of contact at the largest diameter of the tread, and the point of contact of the tire and the rail is on the smallest diameter of the inside wheel and the flange is farther away from the rail. For an example we will take a pair of wheels with tires 60 inches in diameter on the larger diameter of the tread and 59¾ inches in the smaller diameter, and we have the wheel with the flange near the rail moving a distance of 188.496 inches each revolution and the wheel on the inside of the curve, or with the point of contact on its smaller diameter, with the flange away from the rail will move a distance of 187.7106 inches or .7854 of an inch less distance each revolution of the wheel, due to the difference in the diameters of the wheels at the points of contact with the rails. As there are 5,280 feet in a mile and the 60-inch wheel would make 336 revolutions per mile there would be a

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difference of 22 feet between the distance covered by the inside and outside driving wheels, providing the wheels came in contact with the rails as described above. The lateral motion or side play between the face of the hubs and the driving boxes will permit the flange on the outside of the curve to roll toward the rail where the diameter is larger.

66. Underhung Springs and a Broken Tire.—"How should a standard eight-wheel American engine with underhung springs be handled in case of a broken tire? Spring saddle extends into the bottom of the driving box and is held in position by a pin?"—*M. R.*

Answer.—This is a poor design of a driving box for a case of this kind, as the cellar is raised in the center to clear the steel pin that supports the spring saddle, this pin extending through the box is held in place by the face of the shoe and wedge. When the tire breaks, if it still remains on the wheel, it is necessary to keep it from the rail, and if it is broken so that it comes off the wheel, the wheel center must be raised to keep it from being damaged. We will take for example the forward tire broken. We will insert a block between the top of the back box and under the top rail of the frame, take out the cellar and see if we have space enough between the spring saddle and the journal to put in a block that will hold the broken tire from the rail. If not, it will be necessary to remove the pedestal or thimble bolt. Then run the back driver up on a wedge to raise the lower end of the pedestal jaws or legs of the frame above the pin. Take out the pin, remove the spring and saddle, and cut a block from the end of a timber or tie that will fill the space between the pedestal bolt and the journal when the wheel will clear the rail. Have it thick enough to allow for wear and settling. Chain the end of the equalizer to the frame and run the back wheel off the wedge. Then put the pedestal bolt back in place and tighten the nuts. Now put the wedge under the wheel with the broken tire and run the wheel up on it until you can insert the block between the pedestal bolt and the journal. Run the wheel off the wedge and you are ready to proceed. If the back spring is heavy enough to carry the load the blocks may be removed from the top of the back box and the back spring utilized.

67. Engine Slipping with Heavy Train.—"If an eight-wheel engine was down on her back boxes would it have a tendency to make the engine slip with a heavy train?"—*M. R.*

Answer.—An eight-wheel engine usually has about one-third of its weight supported by the engine truck and the other two-thirds supported on the drivers through the medium of equalizers and springs. The truck supporting the weight at the front end is one point and the fulcrums for the equalizers on each side of the engine form the other two points, thus forming a tripod to distribute the weight equally on uneven track. The two back points of the support place the weight on the fulcrums of the equalizers and it is transmitted to the springs, saddles, and hangers for the purpose of lessening the shock and equalizing the load on rough track. It is evident that each end of the equalizer must support one-half of the load or weight at the fulcrum and when one end of the equalizer moves down the other end will move up an equal distance and the weight on the support is the same as if the equalizer was in a horizontal position. Therefore, an engine slightly low behind or down on her back boxes would not lose her adhesion or be more liable to slip providing the points of support were the same and the equalizer free to move on the fulcrum. If the load intended to be carried on the drivers was transferred to the back boxes on account of their being blocked between the top of the box and the frame, the equalizing feature would be destroyed and the forward wheels would support little of the weight, if any. More weight would be carried by the truck and the result would be less weight on the drivers, which would reduce the adhesion and cause the engine to slip.

68. The Sight-Feed Lubricator.—"Does the oil fed through a sight-feed lubricator go from the lubricator to the valve by gravity, or is it forced down by a current of steam?"—*C. B. R.*

Answer.—Oil that is fed through a sight-feed glass of a lubricator rises to the top of the water in the glass by reason of the oil being the lighter, and the pressure of the weight of the water in the condensing chamber whose level is higher than the level of the water in the chamber above the sight-feed glass. The steam that flows through the equalizing tube forces water from condensation through the hole in the choke plug, keeping the water at a level with the opening. As the oil rises to the top of the water, the water and oil above this level are forced through the choker into

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the oil pipe leading to the steam chest. When the pressure at the lubricator end of the oil pipe is the greater the oil is carried to the steam chest by the current of steam pressure. Oil being heavier than steam it would flow to the chest by gravity without the pressure of steam, but the movement would be slow. When the pressure at the steam chest end of the oil pipe exceeds the pressure of the lubricator end the oil pipe is sometimes filled with water, forming what is termed a pocket for the oil and preventing the flow of the oil to the chest until the pressure is reduced at that end of the pipe. Oil does not flow through the pipe as it appears in the glass. When the drop of oil rises opposite the hole in the choke plug the steam and water atomizes it and it is mixed in proportion to the amount of oil and water that pass through the choker. The valves and cylinders get oil and water. A sample of this can be easily obtained by disconnecting the oil pipe, starting the lubricator and placing a bucket under the end of the pipe. Various kinds of circulating valves and devices are used to insure a positive circulation through the oil pipes from the lubricator to the chest and maintain lubrication under the varying conditions.

69. Bridging Exhaust Nozzles.—"What difference does it make whether you put a bridge in an exhaust nozzle crosswise with the flues or parallel with them? A bridge is used here to spread the exhaust steam to fill the stack so the engine will burn her fire."—*A. H. W.*

Answer.—A bridge placed in a single nozzle has the effect of reducing the area and increasing the back pressure in the cylinders. Spreading the steam to fill the stack in this manner would have a tendency to further increase the back pressure, as it has been found that reducing the choke or small diameter of the stack caused back pressure the same as reducing the nozzle. If the stack is out of line to one side or the other, placing the bridge parallel with the flues would cause the steam to fill the stack and produce a greater vacuum than if the stack was not filled by the exhaust. Should the stack be out of line, either forward or back of the nozzle, then it would be more beneficial to place the bridge crosswise of the flues, but it would be better to have the nozzle and stack put in line so that the expansion of the exhaust steam would fill it evenly. Bridging a nozzle is usually creating one defect to remedy the other.

70. What is the Defect?—"Please explain what defect, if any, and about what percentage of power is lost by the following: Long piston, cylinder is 18x24, 135 pounds of steam, and 55-inch driving wheel. Piston just clears the front end 1-64 of an inch, clearance on other engines of the same make is ⅝ of an inch divided. This engine does not give satisfaction and the trouble can not be located anywhere except a long piston. If this affects the lead or pulling power, please advise."—*Sap.*

Answer.—If this engine is still in service the clearance should be attended to at once, as it is not sufficient to allow for the keying of the main rod to take up the wear on the brasses, and there is danger of knocking out the front cylinder head. We will presume that this engine originally had 5-16 of an inch clearance at each end of the cylinder and the clearance on the front end was reduced on account increasing the length of the main rod by driving the keys. That being the case, we have 1-64 of an inch clearance on the front end and 39-64 of an inch on the back end. Neglecting the space between the circumference of the cylinder and the valve face, we would have a volume of clearance in the front end of about 4 cubic inches and a clearance volume in the back end of about 130 cubic inches. The position of the eccentric in relation to the pin is not changed, therefore, the lead of the valve would be the same, and if cutting off the steam at 5 inches of the stroke, or when the piston had moved 5 inches from the end of its travel, we would have a volume of steam in the front end of the cylinder equal to 1,276.5 cubic inches to force the piston back by its expansive force. In the back end of the cylinder we would have a volume of steam equal to 1,402.5 cubic inches to push the piston ahead, which would give a higher mean effective pressure in the back end than in the front end of the cylinder. This increased volume of steam confined in the cylinder when the valve closed the admission port may cause the exhaust from the back ends of the cylinders to sound heavy. Would have the clearance divided for each end of the cylinder and take up the dome cover and see if the throttle valve opened enough to admit steam to the dry pipe in sufficient quantity to develop the required power in the cylinders. The throttle valve should lift ¼ of an inch for each inch of its diameter to get the full opening. Does it?

71. Engine Doesn't Steam.—"Will you kindly give me your advice and the benefit of your experience on the following? The engine came here new last August with a

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brick arch and up to some time ago did first rate. She has not been doing so well lately and have reported work as follows: 'New brick arch, bore out flues, clean out nozzle, etc.' She had been steaming pretty well before this work was done, but tore the fire all to pieces, especially after being cleaned, knocking it through to the pan. They had no new brick to put in, so took the remains of the one out entirely. They found the nozzle coated about ¼ of an inch and cleaned that out. Now she does not steam nearly so well and burns all the coal you can pile on. Should the diaphragm be altered, and if so, higher or lower?"—*C. G. B.*

Answer.—An engine out of the shop six months should be in good condition if running in a locality where there is good water used, providing that the flues and firebox do not leak and the boiler is free from mud and scale. You have the same amount of heating surface, and with the valves and cylinder packing tight the engine ought to do good work. Although the brick arch is considered as an aid to combustion, the engine can be made to steam well without one, but it is usually necessary to lower the diaphragm about 3 inches when the arch is removed, providing that the front end was properly adjusted to steam with one. Lower the diaphragm to increase the draft in the forward end of the firebox and through the lower flues and raise it to increase the draft in the back of the firebox and through the upper flues. Change it until you get the fire to burn evenly on the grates. Would suggest that the exhaust pipe be examined and ascertain if it is not choked up below the tip, thereby reducing the area of the exhaust pipe which, with the uneven draft you may have, tears holes in the fire. See that the stack is in line with the nozzle, that the gasket between the exhaust pipe and cylinder saddle is not cracked or blown out, and that the exhaust from the air pump is directed up the stack and not against the pipe or smoke arch, thus destroying the vacuum in the front end. If the fire burns a dull red have the steam pipes examined for leaks. Go right after her and you will make steam. There is money in it.

72. Working Full Stroke and Cut Back.—"All other things being equal, with sufficient boiler capacity to furnish the required amount of steam, could a locomotive, such as is run on the fast trains of today, make as fast time by working steam the full stroke of the piston as it will if cut back? If not, please explain why."—*E. C. B.*

Answer.—With sufficient steam supplied to work a locomotive at full stroke, it is the general opinion that the engine would not run as fast as if cut back and steam used expansively, regulating the cut-off to meet the requirements of the service. The locomotive as designed would be unable to get rid of the steam fast enough to prevent back pressure and the engine would be choked with steam. As the back pressure increases the mean effective pressure would be diminished and result in a loss of power and speed.

73. Weight on Drivers and Tractive Effort.—"Does the term 'weight on drivers' mean also the weight of the drivers, journals and pin connections in figuring the tractive effort? If not, why not? Why, in figuring the tractive effort, do you take only one side of the engine instead of both cylinders?"—*W. L. G.*

Answer.—The adhesion of a locomotive is the friction between the driving wheels and rails and depends upon the weight or pressure of the surfaces in contact. Therefore, the weight on the drivers means the weight of the driver and the load resting on it at its point of contact with the rail. The weight on drivers is usually limited by the engineering department and depends on the weight of the rails, condition of the road bed, strength of the bridges, etc. If the weight of the drivers was not included in placing the limit, the engine would be hard on the track and increase the cost of maintenance of roadway and bridges. A pair of drivers will weigh from 6,000 to 9,000 pounds, and as they add to the adhesion, it should be figured from the point of contact with the rail. The use of the dynamometer car is the most accurate method to obtain the drawbar pull or tractive power of a locomotive. This is a car specially fitted with a drawbar connected with calibrated springs that indicate the number of pounds pull on the drawbar. The answer to question No. 63 in the March issue gives the formula referred to in this question and is usually employed in figuring the tractive power as it meets the requirements. In answer to question No. 63 we found a tractive power of 22,674 pounds for an 18x26-inch engine with a 60-inch wheel and 190-pound boiler pressure. If we desire to obtain the tractive power by figuring both pistons or both sides of the engine, the following formula should be used instead, which gives nearly the same results. To make the example clear to all we will give the figures. Area of one piston (which = 254.4696 square inches) times the pressure in the cylinders (which = 161.5

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pounds) times twice the length of the stroke (which = 4.3333 feet) times 2 (for both pistons or both sides of the engine), divided by the circumference of the wheel, equals tractive power of 22,685 pounds. A slight difference, but either is accurate enough for general application and the one cylinder method is the shortest, therefore most used in calculation. If the weight on the drivers is known, one-fourth of the weight is usually taken as the tractive power. In the above, would expect the weight on the drivers to be about 91,000 pounds.

Should we desire to figure the tractive power with the two-cylinder or both piston method, we would use the following formula: Area of one piston (in this case = 254.4696 square inches) times the pressure in the cylinder (which = 161.5 pounds) times twice the length of the stroke (which = 4.3333 feet) times 2 for both sides, divided by the circumference of the wheel (which = 15.7 feet), we have:

```
                254.4696
                  161.5  pressure
              ----------
               12723480
                2544696
              15268176
               2544696
              ----------
              41096.84040
                  4.3333  Twice the stroke
              ----------      in feet
            12329052120
             12329052120
            12329052120
           12329052120
          16438736160
          ----------
          178084.938505320
                    2     For both pistons
          ----------
          356169.877010640
```

Divided by the circumference of the wheel in feet, we have:

```
15.7 ) 356169.877010640 ( 22685.3+
       314
       ---
        421
        314
        ---
        1076
         942
         ---
         1349
         1256
         ----
          838
          785
          ---
           537
           471
           ---
            66
```

Train Rules and Train Practice.

Answers by H. A. Dalby.

84. New Time Table.—"No. 53 is a daily passenger train and is due to leave Shops (terminal point) at 4:12 p. m. on old schedule. Sunday, January 11th, at 12:01 p. m., a new schedule went into effect which shows No. 53 leaving Shops at 6:03 a. m. Can there be a No. 53 of January 11th according to Standard Rules?

"As a matter of information will say that this train was run and had orders to run 8 hours late by first trick dispatcher and while on the road another dispatcher came on duty and run them extra from where they were and did not annul No. 53."—*J. D. M.*

Answer.—We believe the general understanding of this situation is that No. 53 is due to be on the road when the time table takes effect. The first trick dispatcher would therefore be correct in his action. Perhaps the second trick man had no occasion to annul the train, but we think it would have been necessary if he did not want the schedule in effect on Sunday.

This answer is based on the supposition that Standard Rule 4 (B) is in use.

85. Another Time Table Question.—"You have orders to run extra Howells to Winder. No. 22 of January 22d is annulled. No. 22 is due to leave Howells at 6 p. m. You arrive at Winder 11:45 p. m. and ask for running orders to Shops. January 23d, at 12:01 a. m., a new time table takes effect and on the new time table No. 22 is due to leave Winder at 12:05 a. m. The dispatcher says to wait until 12:05 a. m. and represent No. 22 on the new time table. Winder is a registering point and a terminal for local freights. Can you represent No. 22 of January 23d?"—*J. D. M.*

Answer.—As we understand the situation it is this. No. 22 is scheduled from Howells to Shops and if that schedule had not been annulled on the 22d there would have been no question as to its being in effect on the new time table. The question is, therefore, whether, on the taking effect of the new time table, No. 22 can be considered as due to be on the road. We are compelled to admit that we do not know. We presume that arguments could be brought forward to support either side of the question. If we were concerned in the movement of this train we should take the safe side, and we think that would be for the dispatcher to put out an order reading as follows:

"No. 22 due to leave Winder at 12:05 a. m., January 23d, is annulled Howells to Shops."

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Possibly we do not correctly understand the question. If so, we shall be glad to hear further.

86. Who Takes the Siding?—"We were on extra 1379 and would like to know who is entitled to main line at D on the following orders:

"Order No. 1 (received at B):

"Extra 1379 east will take siding and meet extra 338 west at C."

"Order No. 2:

"Extra 1379 east will meet extra 338 west at D instead of C."

"East bound trains of all kinds have right of track over all trains of same class. Does the first part of Order No. 1 still hold good at D, or is the whole order superseded by Order No. 2?—*F. R. S.*

Answer.—We have heard this question raised before. It has been argued that the second order changes the meeting point only and does not affect the clause directing extra 1379 to take the siding. Our opinion, however, is different. The provision for extra 1379 to take the siding is dependent on the other part of the order, which is to meet extra 338 *at C.* The first clause has no meaning except in conjunction with the second, and we think that when the second clause is made void, the first one is also. If we are correct in this, extra 1379 would hold the main track at D.

Since there is evidently a doubt in regard to such an order, we think it a good subject for decision by the proper officer.

Note.—A correspondent from Missouri sends us the following:

"Enclosed find copies of train orders in use on the Frisco System. I send these in compliance with request in the February Firemen's Magazine. We are using the Standard Code with a great many variations, but there is no provision made for a subsequent order directing a train to run so much later than the time given in a previous order."

The request referred to was under the head of "Schedule for Delayed Trains," on page 152 of the February Magazine, and the orders attached are in the same form as those quoted in that article. They contain the names of a dozen stations and the time is intended to be used by trains in both directions.

He says there is no provision made for running the train so much later than the time specified in the order. We can not help but wonder what the dispatcher would do if he found that the train would be 15 minutes later than he first thought. Would he send another order, containing times at the 12 stations? We know how much time that would take. We should rather say, "No. 2 will run 15 minutes later than Order 34." Why not?

Who else will give us more light on the subject?

Railway Club Proceedings

Driving Boxes and their Lubrication.

MR. R. P. BLAKE (Northern Pacific Ry.): In connection with this subject there is one point which has not been brought up, and that is the use of hard grease for lubricating the driving boxes. My attention had not been called to it, until within the last few weeks, and I have found that the Michigan Central Railroad has been using hard grease for lubricating the driving boxes with what they claim excellent results. I have not had any opportunity of going into it to find out exactly what they have accomplished, but in a general way I understand that they get fully twice as good results as with the oil. It is much more reliable, and does not require anywhere near the attention. The method is to fit the cellar close up against the side of the journal and fill the cellar with grease; in the bottom of the cellar is put a plate or block that fills in completely, with a spring underneath it which keeps the grease pressed up against the axle. Between the axle and this grease they put a fine wire netting. I would be very glad to know whether anybody in this room has had any experience with a box of that kind, and whether they know anything further about it.

PROF. KAVANAUGH (University of Minnesota): I have never had any experience with grease as a lubricant for locomotive driving boxes, but I have seen a description of a scheme which is being used on the Delaware, Lackawanna and Western Railroad for lubricating both driving and truck axles with grease.

They have a box—you might call it an auxiliary cellar—made of about No. 16 steel. The top of this box, which is

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formed to fit the journal, is perforated and the perforations lie right up against the under side of the driving axle. The grease in the box is pushed up from below and forced through the perforations by means of a follower plate of wood. The follower plate is pressed up against the grease by means of a spiral spring.

A small wire attached to the follower plate protrudes through the bottom of the main cellar and acts as a tell-tale. When the end of the wire becomes flush with the bottom of the box there is still at least three-fourths inch of grease in the auxiliary cellar. This amount is sufficient for a month's service and gives time for engine to be reported for repacking.

The road mentioned has fourteen locomotives in both heavy freight and passenger service equipped with this grease box. Some have been running since last April, and there has been no trouble from hot boxes. I have some figures here giving the cost of this grease lubrication which are taken from an article in November, 1902, issue of the American Engineer and Railroad Journal.

For two eight-wheeled passenger locomotives having 20x26-inch cylinders, 68-inch drivers, 185 pounds boiler pressure and 93,000 pounds on drivers, the total cost for lubricating driving and truck axles was 4 3-10 cents and 4 8-10 per 1,000 miles respectively, as against the former allowance of 58 cents per 1,000 miles for oil, and which did not include oil used in roundhouses.

In freight service, with a consolidation locomotive having 21x26-inch cylinders, 56-inch drivers, 200 pounds boiler pressure and 162,000 pounds on drivers, the record shows the total cost for lubricating driving and truck axles to have been 10 cents per 1,000 miles instead of the former allowance of 84 cents with oil. The wear on the journals lubricated in this manner is very slight and hot boxes have been done away with entirely.

MR. GEO. DICKSON (Great Northern Ry.): We haven't had any trouble with running driving box brasses without babbitt strips. We have never put them in, and what we have received have been new equipment and when they come into the shop we find that the babbitt is usually out; that is, where the babbitt runs the whole length of the brass. But I think Mr. Blake's idea is a good one, that of closing up the end of the strip so that the babbitt, if it does get loose in the groove, can't get out, but will still stay there and lie on the axle. I believe the babbitt strip will impart to the oil its lead and will help the oil as a lubricant. But unless the babbitt strip is held in there so it can't get out I think it is detrimental to the bearing. Of course, you understand when babbitt strips get out it is that many less inches of bearing on the axle and a greater weight on the remaining surface of the brass. I am not particularly against babbitt. I think that the babbitt strip, if it is held in place, will help the lubrication.

PROF. J. J. FLATHER (University of Minnesota): The matter of babbitted strips is one that I had marked, thinking there might be something brought out in discussion on that point. I noticed that Mr. Blake rather favored the babbitt, and my interpretation of Mr. Dickson's paper was that he was somewhat opposed to the babbitt strip. Personally I believe it is a good thing, when properly secured in the bearing. I think a mixture of metals is highly desirable, whether in a locomotive driving box or in a machine bearing; white metal or babbitt used in connection with bronze or even cast iron insures a very superior lubrication. The round spots spoken of are probably preferable to strips. They are used in a great deal of machine work, as well as railway service. The Lehigh Valley road uses them entirely in their crossheads. They use a phosphor bronze crosshead casting, and on each surface they have circles of babbitt about 1½ or 1¾-inch diameter poured into the bronze, which is dovetailed to receive it, and then hammered and all finished up together. The bearing is certainly a most excellent one. Similar circles of lesser size are used in machine bearings with entire satisfaction.

MR. DICKSON: If I put in a babbitt strip I would favor the narrow strip or the round hole. When a brass gets hot and the babbitt runs out there is less square inches of bearing left. I noticed today on an engine that we stripped, there were two babbitt strips gone out of two boxes and in two other boxes there were half of them gone. The boxes showed indications of being heated and the babbitt had been lost. Those strips were about 2 inches wide, and there was considerable loss of the area of the bearing.

PRESIDENT VAN ALSTYNE: I find the chief advantage of babbitt is that it maintains a more uniform bearing, and I have noticed a good many times in taking an engine into the shop if you will clean off the box and the journal and spot the box

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back on the journal with red lead, you will find on a journal 12 inches long that there will be 3 inches on either side that will clear, and it will run down on each side of the center probably a third of the distance. So that a box of the size as large as 9x12 inches, by the time it has run its full mileage has very little effective bearing area, and it is that concentration I think that brings about the heating; that is, the concentration becomes so great that it excludes the oil and brings about a dry spot. Of course, dirt is primarily the cause of the trouble, but it is not directly the cause. It seems to me that it is indirectly the cause, in that it wears away certain parts of the bearing, allows the load to be concentrated on the balance to a point where it is able to exclude the oil. The babbitt takes care of that dirt to some extent, and keeps a more uniform bearing.—North-West Railway Club.

Profitable Courtesy.

MR. C. P. CONVERSE (C. P. R.): If agents were treated with a little more consideration and invited to solicit freight at their respective stations, they could undoubtedly increase their package shipments considerably.

At the present time but few agents are ever addressed by name—simply as "Agent" at such and such a place. He is rarely ever complimented or encouraged and his usual correspondence is made up of peremptory demands for information or scorching letters demanding explanations, from clerks in the various departments. All this has a tendency to sink his individuality and make him careless and indifferent as to his station's earnings so long as he can keep up his reports to the various offices and save himself roasts. If he were to be addressed by his name in a courteous way, and his opinion occasionally asked as to what could be done to improve the service and earnings, his attention politely called to any errors which may have been made and suggestions given as to how to avoid them in the future, and the different departments would keep in touch with him as a "man" and not as a "thing," his self-respect and esteem would soon be increased and as a man is only worth what he values himself at, it would not take long to transform him from an anonymous automaton into an intelligent freight getter.—Western Railway Club.

Overloading Engine.

MR. J. MCPARLLAND: As to the tons loading of freight trains, railway officials for several years have given special attention to tonnage rating of engines, and in many cases, in their efforts to load engines to their maximum capacity, allowed their zeal to carry them too far. For in many cases they rated and loaded engines so they just dragged their trains over the road, resulting in serious delay to their trains and other more important trains, doubling grades, frequent break-in-twos, increased fuel consumption, increased wear and tear on motive power and damage to equipment, and in many cases setting out part of the train between division points, necessitating running out the next train light enough to pick up the set-out freight.

It is not so much the tons hauled by one engine in one train, as the tons hauled by one engine in one week or month. It is far more economical in a heavy business to give engines a slightly lighter loading, which enables them to get over the road at a good average speed to division points, where engines can be promptly turned and gotten out with another train. This results in an increased engine tons mileage in a given time, decreased fuel consumption, expense in maintenance of engines and repairs on equipment, a greater contentment among trainmen and enginemen and a considerable decrease in the amount of delayed time paid.—Western Railway Club.

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Two Millions in Discarded Engines.

The installation of the "third-rail" electric system on the elevated railways of New York has put an end to the usefulness of 324 little "dummy" locomotives, as they are sometimes incorrectly called. Never before was such a vast number of street railway engines put on the shelf at one time. There are two million dollars' worth of them, and they must stand idle and rust until they are sold at second hand. They are distributed now at different stations of the Manhattan Railway, but by far the greatest number is at a single station near the Harlem River, on the Third Avenue line. Hundreds of them in long rows stand close together, side by side, on a broad elevated structure, a great mass of activity stilled.

All of these locomotives were in running order and in use when electricity succeeded steam on the elevated lines. Their average cost was $6,000 each; some of them being nearly new, are valued at nearly that price now; while others, which have seen many years of service, have been sold for $1,500 each. Some of them have gone to Kansas and Oklahoma to be used in railroad construction, for hauling loads of material short distances. They are designed to run backward as well as forward and to pull a load on the level of about 600 tons. Others of the discarded Manhattan engines have been sent to coal mines in Pennsylvania and Maryland.

These little engines are not needed any more in the traction world of cities. Electricity has succeeded them everywhere, but they are still in demand in construction work. The life of one of them is about a quarter of a century. Some of those of the Manhattan road have been in use twenty years. Locomotives are still in service on the Sixth Avenue and Ninth Avenue lines of the Manhattan Railway, but are soon to be superseded there by electric cars, as has already been done on the Third and Second Avenue divisions. Many years ago real "dummy" engines were run on street railway lines in Brooklyn and other cities. They were made to conform to the law which prevented open engines from running through the streets. The "dummies" were built like ordinary trolley cars, excepting the trolley pole; and in the front vestibule of each "dummy" was an upright boiler which furnished power to propel the car, the wheels of which were drive-wheels. The real "dummy" engine is seldom seen now.—Leslie's Weekly.

* * *

Keeping Coal Records.

It often happens that a railway company buys coal by weight and pays for so many tons, each composed of 2,000 pounds. The engines belonging to this same company are in all probability supplied with coal not weighed at all, but shoveled into pockets which are filled up to a certain level, and these pockets are then said to contain two, three or five tons as the case may be. As a matter of fact what the engine gets is not tons of coal, but a certain measure of volume, of which the exact weight is unknown.

There is generally a periodic attempt to make the coal bought by weight tally with the coal measured out to the engines, because the latter are called "tons." As there is no definite ratio existing between the two, the work of making both sides of the coal account balance may possibly be regarded as "fudging" by those who are disposed to look at the process with unfriendly eyes.

It may, however, be argued that definite volumes of coal, when dealt out to engines, are near enough, as all fare alike. This would be so if some substance such as water was being supplied, for in the case of water there is practically a constant ratio existing between weight and volume all the time, which is not true of coal. Large, lumpy coal and fine, small coal when filled to the same level in a coal pocket, represent two very different amounts of fuel, and what the engine is concerned with, when making her record, is the amount of carbon carried on her tender, not the height it will pile up to in a certain sort of receptacle.

If accounts are to be kept with accuracy the weighed ton can not fairly be made to tally with the uncertain, measured, so-called ton. It is worse than using pounds, shillings and pence. There is a definite known relation between the three denominations of money by which the value of any one can be accurately expressed in terms of any other. This connecting ratio does not exist between

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the weighed ton and the measured "ton."

Run-of-mine coal differs sufficiently in heat producing qualities from carload to carload, as it is, without adding an artificial difference in the way it is received and put upon the tenders. The desire at the present day for accurate detailed costs in railway operation is perfectly justifiable, and if this is to be rightly done the accurate weighing of coal, supplied to engines, is as important as is the careful measuring out of oil. The accurate method is also fairer to the men who use the coal.

There are many locomotive coaling stations where the weighing hopper is not used, and where coal is supplied in bulk. At these places due allowance should be made for the fact, and the man in charge should not be compared with another man on whose division the most modern equipment has been installed, and in no case should coal records be "fudged" in order that a set of books may be made to look as if they balanced exactly.—Locomotive and Railway Engineering.

The Automobile.

"Don't prophesy unless you know" is a pretty good rule, and we sometimes wish it were more generally followed, but the temptation is strong to try to look into the future a little way occasionally, especially when important interests are involved. Particularly strong is that temptation just now with regard to automobiles, and the effect they are likely to have upon our manner of life.

No one who had the privilege of inspecting the vehicles shown at Madison Square Garden last week could fail to be impressed with the magnitude of the business there represented and the great interest taken in it by the public. There is at present a craze for automobiles and people willingly, even eagerly, pay more money for them than they will be expected to pay after the business has settled somewhat, but there is every indication that the business of building and selling autos, now large, will become much larger and that the machinist instead of the farmer and horse breeder is to supply the motive power with which goods and people are to be moved over the highways. This work will be done more rapidly, more safely and more economically than by horses and with the added advantage of much better sanitary conditions, especially in cities.

A certain company which runs thousands of wagons in all parts of the country, hauling goods, and which has been experimenting for some time past, has become satisfied that, by means of power-driven vehicles, goods can be carried at one-sixth the cost per ton per mile of the present service by horses. This is one of the most significant facts we know of in connection with the business and means almost certainly that horses will be superseded for such work. Whatever pays on any such scale as that is certain to be adopted and nothing can prevent it.

The one feature of uncertainty about the matter, perhaps, relates to the supply of fuel. The Standard Oil Company controls the supply of gasoline and under present conditions may do what it likes in regard to price. In Germany they are introducing alcohol in place of gasoline, and it is believed to be a better fuel for the purpose. At present its employment here is prohibited because there is such a tremendous internal revenue tax upon it. This tax upon alcohol used in the arts ought long ago to have been repealed and must be repealed so that the acreage now devoted to raising oats, hay and other horse provender may be devoted to raising alcohol-producing crops — automobile provender.

Very little modification of the present gasoline engine or of the present gasoline burner will be required to adapt them to alcohol, and when this is done and the vehicles otherwise improved so that those who use them will not have to wear dust-proof and oil-proof clothes, everybody who now uses horses will use automobiles. We believe they will be used for driving harvesting machines and doing a good deal of other farm work, as well as upon the highways. We think, too, that it is not unlikely that they will lead to the removal of street railway rails from city streets and that public vehicles will run upon the surface of the streets without rails, each vehicle with its own independent motive power.—American Machinist.



Solidified Petroleum Fuel.

A demonstration of the characteristics of a solidified petroleum fuel was given in Chicago recently, which apparently showed that the inventor, Mr. Austin Granville, has succeeded in overcoming the objectionable features that have hitherto accompanied solidified petroleum fuels made by other processes. The heat value of the briquettes is about 18,000 B. T. U.

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per pound, and they burn with a fierce white flame, leaving little or no ashes. The heat is so intense that for many purposes it is advisable to use coal dust, sawdust or other refuse of a carbonaceous nature to reduce the intensity of the flame. For steam making the preferable method of burning the briquettes is on a traveling chain grate, the air being admitted over the top and none through the grate. A plant having a capacity of 1,000 tons per day is being erected at Port Arthur, Tex., and another at San Raphael, Cal. The fuel can be delivered at tidewater from the Texas field at a cost of $1.20 per ton, which, considering its greater calorific value, is equivalent to coal at about 90 cents per ton. The dangers attending crude oil in bulk are of so grave a nature that it is not probable that it can ever be used for many purposes where it would if the danger of fire was not so great. With the solidified product, however, the fire hazard disappears; also the difficulty of handling and transportation.—Railway Machinery.

A Premium Plan for Traveling Engineers.

The Chicago Great Western has a plan with reference to locomotive coal records which is worthy of general adoption. Coal records are carefully kept, the chute reports being sent daily to the superintendent. Coal allowances are made for each class of engine and each kind of service as follows:

Trains Nos. 1 and 2 between Minneapolis and Chicago, 1.0 ton per 10,000-ton miles.

All other passenger and branch trains, 1.2 tons per 10,000-ton miles.

All stock or time freights, .8 ton per 10,000-ton miles.

All other freights, .9 ton per 10,000-ton miles.

Switching, work train or helper engine, .25 ton per hour.

Idle under steam, .025 ton per hour.

The traveling engineers are paid a certain guaranteed minimum salary and their actual rates per month are based upon the per cent. of excess made by the engines on the divisions with which they are connected. The traveling firemen receive a rate which is proportionate to that of the traveling engineer of the same division. Of course these allowances must be very carefully determined and the grades, speeds and character of the locomotives must be considered. They would vary greatly on different roads. For the Chicago Great Western Mr. Van Alstine has prepared a schedule for each division, giving the rates of pay per month for various percentages of excess. The plan has been in effect since May 1, 1902, and is reported to be very satisfactory. The original plan of making allowances per 10,000-ton miles for each train, or class of trains, has been in effect on this road for over ten years. Traveling engineers were put on about two years ago and soon after were placed on the premium basis.—American Engineer and Railroad Journal.

A Fireman's Woes

By Ed. M. Dowdy

Why is it things go wrong—
All in a bunch?
Bad weather, no steam, and
Oh! for a lunch.
The Trainmen's cranky, and
The "Hog-head's" hot,
And the coal's the worst
The company's got.
The coal's stacked up
On the back of the tank,
And the door comes open,
With a mighty yank.
You shake the grates
With an aching back,
And dig down more
Of the good old slack.
You shovel it in
Till you're black's a pot,
And curse your luck
And a fireman's lot.
The clinkers in the fire-box
Are an awful fright,
And you've hoed the pans
From morn till night,
And you vow to yourself
This twenty-hour trip,
Is the last you'll make
On a big battleship.

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Enginemen's Course in Arithmetic

By W. S. Carter

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Mensuration

136.—Solids have length, breadth and thickness, and are bounded by plane surfaces, curved surfaces, or by both plane and curved surfaces.

The *Volume* of a solid is the number of cubical units it contains; therefore solids are measured with cubic measure.

(Cubic measure was explained in Arts. 81 and 84 in the February, 1902 Magazine.)

The *Altitude* of a solid is the perpendicular distance from its base to its highest point.

(In Fig. 31 *e a* is the altitude.)

A *Plane Surface* is a straight or even surface; a surface with which a straight line would coincide if applied in any direction.

(In Figs. 31, 32, 33 and 34 all surfaces are plane surfaces.)

NOTE.—The lateral plane sides or faces of a solid *when taken collectively* is called its "convex surface." In Fig. 31 the four perpendicular sides *treated as one surface* is called the "convex surface" of the solid. As will be learned later, however, this is a misnomer.

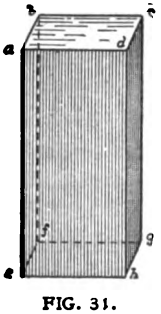


FIG. 31.

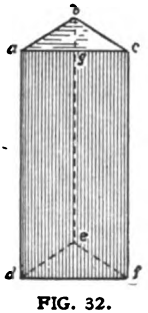


FIG. 32.

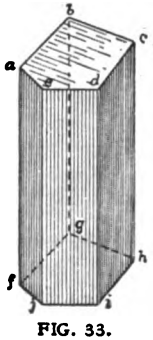


FIG. 33.

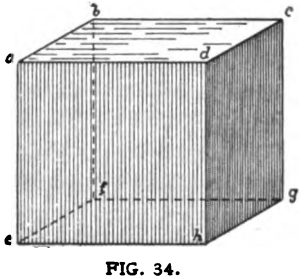


FIG. 34.

137.—A Prism is a solid which has two faces equal and parallel to each other and polygon in form, and with any number of lateral faces which are parallelograms in form.

(Figs. 31, 32, 33 and 34 are prisms. The top and bottom faces are the bases and are equal and parallel with each other, and the perpendicular faces are the lateral faces.)

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A *Right Prism* is one all of whose lateral faces are perpendicular to its base.

(Figs. 31, 32, 33 and 34 are right prisms.)

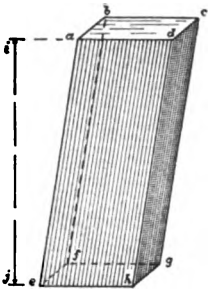


FIG. 35.

An *Oblique Prism* is one whose lateral faces are not perpendicular to its base.

(Fig. 35 is an oblique prism.)

A *Regular Prism* is one whose bases are regular polygons.

(Figs. 31, 32 and 34 are regular prisms.)

A *Parallelopiped* is a prism all of whose faces are parallelograms.

(Figs. 31 and 34 are parallelopipeds.)

A *Triangular Prism* is one whose bases are triangles.

(Fig. 32 is a triangular prism.)

A *Quadrilateral Prism* is one whose bases are quadrilaterals.

(Figs. 31 and 34 are quadrilateral prisms. In the same manner all prisms may be described by the number of sides in the perimeter of the base.)

A *Cube* is a prism all of whose faces are equal squares.

(Fig. 34 is a cube.)

A *Truncated Prism*, or as it is usually called, the *Frustum of a Prism*, is one from which a portion has been cut off by a plane that is not parallel to the bases.

(In Fig. 36 the right prism has been truncated by the plane *a b ç d*, which leaves a solid with lateral sides that are not all parallelograms. The face *d c g h* is smaller than the face *a b f e*, and the faces *a d h e* and *b c g f* are trapezoids.)

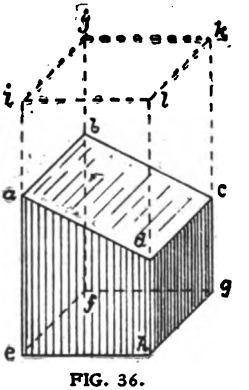


FIG. 36.

138.—Propositions Relating to Prisms.

Prop. XXVIII.—The convex surface of a prism is equal to the perimeter of the base multiplied by the altitude.

(In Fig. 31 let us presume that the four lateral sides are each 10 in. wide and 21.25 in. long, that is, let us suppose the perimeter of the base to be 40 in. and the altitude of the prism 21.25 in. Then, 40 in. $\times$ 21.25 in. = 850 sq. in., which is the area of the convex surface of the prism.)

Prop. XXIX.—The volume of a prism is equal to the area of the base multiplied by the altitude.

(In Fig. 31 if the altitude be 21.25 in. and the base 10 in. square, the area of the base is 10 in. $\times$ 10 in. = 100 sq. in., and the volume of the prism is 100 sq. in. $\times$ 21.25 in. = 2125 cu. in.)

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NOTE.—In an oblique prism the altitude is not the length of the lateral sides, but is the perpendicular distance between the two base lines.

(In Fig. 35 $i\,j$ and not $a\,e$ is the altitude.)

Prop. XXX.—The volume of the frustum of a prism is equal to the area of the base multiplied by the average altitude of the vertical edges or lines of intersection between the lateral faces.

(In Fig. 36 suppose the vertical edges to be as follows: $a\,e = 10$ in.; $b\,f = 10$ in.; $d\,h = 7$ in.; $c\,g = 7$ in. The average altitude is $\frac{10 \text{ in.} + 10 \text{ in.} + 7 \text{ in.} + 7 \text{ in.}}{4} = 8.5$ in. Let us suppose the area of the base to be 100 sq. in., then the volume of the frustum of the prism is 100 sq. in. $\times$ 8.5 in. $=$ 850 cu. in.)

139.—Problems Involving Volumes of Prisms.

Prob. 31. Suppose Fig. 31 to be a regular prism, with base 7 in. square and altitude 15 in. (a) What is the area of the entire surface of the prism? (b) What is the volume of the prism?

Ans. (a) 518 sq. in.
(b) 735 cu. in.

(a) The area of one base is 7 in. $\times$ 7 in. $=$ 49 sq. in. The area of the two bases is 49 sq. in. $\times 2 =$ 98 sq. in. The perimeter of the base is 7 in. $\times 4 =$ 28 in. The altitude being 15 in. the area of the convex surface is 28 in. $\times$ 15 in. $=$ 420 sq. in. The area of the entire surface is the area of the base (98 sq. in.) $+$ the area of the convex surface (420 sq. in.) $=$ 518 sq. in.

(b) The area of the base is 7 in. $\times$ 7 in. $=$ 49 sq. in., and the altitude is given as 15 inches. The volume of the prism is 49 sq. in. $\times$ 15 in. $=$ 735 cu. in.

Prob. 32.—Suppose Fig. 32 to be a triangular prism with the following dimensions: $a\,c = 10$ in.; $g\,b = 8.66$ in.; $a\,d = 21$ in. (a) What is the area of the entire surface of the prism? (b) What is the volume of the prism?

Ans. (a) 716.6 sq. in.
(b) 909.3 cu. in.

(a) From Prop. XIX (February Magazine): The area of one base is 10 in. $\times \frac{8.66 \text{ in.}}{2} = 43.3$ sq. in. The area of both bases is 43.3 sq. in. $\times 2 =$ 86.6 sq. in. The perimeter of the base is 10 in. $\times 3 =$ 30 in. The area of the convex surface is 30 in. $\times$ the altitude (21 in.) $=$ 630 sq. in. The area of the entire surface is the area of the two bases (86.6 sq. in.) $+$ the area of the convex surface (630 sq. in.) $=$ 716.6 sq. in.

(b) The area of the base is 10 in. $\times \frac{8.66 \text{ in.}}{2} = 43.3$ sq. in. The volume of the prism is the area of the base (43.3 sq. in.) $\times$ the altitude of the prism (21 in.) $=$ 909.3 cu. in.

Prob. 33.—Suppose Fig. 34 to be a cube, each edge of which measures 100 in. (a) What is the area of the entire surface? (b) What is the volume of the cube?

Ans. (a) 60,000 sq. in.
(b) 1,000,000 cu. in.

(a) The area of the base of the cube is 100 in. $\times$ 100 in. $=$ 10,000 sq. in. The area of the two bases is 10,000 sq. in. $\times 2 =$ 20,000 sq. in. The perimeter of the base is 100 in. $\times 4 =$ 400 in The area of the convex surface is the perimeter (400 in.) $\times$ the

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altitude (100 in.) = 40,000 sq. in. The area of the entire surface is the area of the two bases (20,000 sq. in.) + the area of the convex surface (40,000 sq. in.) = 60,000 sq. in.

(b) The area of the base is 100 in. × 100 in. = 10,000 sq. in. The volume of the cube is the area of the base (10,000 sq. in.) × the altitude (100 in.) = 1,000,000 cu. in.

Prob. 34.—Suppose Fig. 36 to be a frustum of a prism with the following dimensions: $b\,f = 10$ in.; $a\,e = 9$ in.; $c\,g = 7$ in.; $d\,h = 6$ in.; $e\,h = 9$ in.; $h\,g = 10$ in. What is the volume of the frustum? *Ans.* 720 cu. in.

The average altitude is $\frac{10 \text{ in.} + 9 \text{ in.} + 7 \text{ in.} + 6 \text{ in.}}{4} = 8$ in. The area of the base is 9 in. × 10 in. = 90 sq. in. The volume of the frustum of the prism is the area of the base (90 sq. in.) × the average altitude (8 in.) = 720 cu. in.

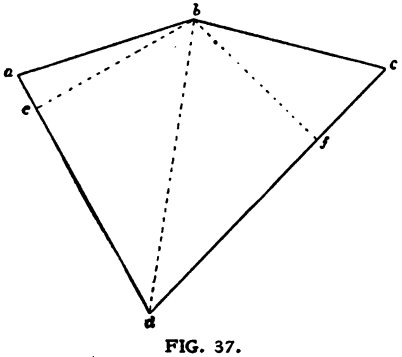


FIG. 37.

Prob. 35.—Suppose Fig. 37 to represent the base of an irregular right prism whose altitude is 80 in. and the dimensions of the base are as follows: $a\,b = 10$ in.; $b\,c = 8$ in.; $c\,d = 15$ in.; $d\,a = 12$ in.; $e\,b = 9$ in.; $b\,f = 7$ in. What is the volume of the prism? *Ans.* 8520 cu. in.

To find the area of the base, which is an irregular polygon, we divide the polygon into two triangles with the line $b\,d$. We then drop the perpendicular $b\,e$ from the vertex of the triangle $a\,b\,d$ and the perpendicular $b\,f$ from the vertex of the triangle $d\,b\,c$. The area of the triangle $a\,b\,d$ is the base $d\,a$ (12 in.) × half the altitude $e\,b$ (4.5 in.) = 54 sq. in. The area of the triangle $d\,b\,c$ is the base $d\,c$ (15 in.) × half the altitude $b\,f$ (3.5 in.) = 52.5 sq. in. The area of the entire base is 54 sq. in. + 52.5 sq. in. = 106.5 sq. in. The volume of the prism is the area of the base (106.5 sq. in.) × the altitude (80 in.) = 8520 cu. in.

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Why Bob Quit the Road

By W. DeKeith

TAINT many men as quits a runnin' train and takes an office job, but Bob Neff is one of 'em."

Tom Kelsay was boss of the pit side in the roundhouse back shop and had the history of every old man in the company's employ at his memory's finger ends, so to speak, and all who heard his remark knew that just back of it was a good story. Tom had his own peculiar way of letting them know when he had a story on hand, and to have asked him for one before he indicated his desire to relate it would have met about the same success as opening the throttle on an engine that had not steam enough to move herself. However, as he was about to begin his narrative intended to interest his companions, who had been discussing transfers from one branch of service to another, the subject of Tom's story entered a door in the rear of the shop and approached the group.

"Here's Bob, now. Let him tell it himself. I don't say that he got skeered out a-runnin' his train, for everybody knows Bob has got narves like a steel trap, but he's here, so let him tell it."

After a greeting all around, Pat Kelly said:

"Say, Bobby, you used to run a train once—I mean you was conductor, wasn't you?"

"Yep," replied Bobby with his usual nonchalance.

"How was it you broke off on it and went into the Old Man's office?"

"Guess I've time to tell you about it if you want to hear it," he said, looking at his watch. "Tom has heard the yarn and could tell it if he would but, since you've asked me, here goes:

"Let's see; it's six years ago this summer aint it, that we were taking the first gravel out of the pit?"

"Seven, Bobby, since the pit opened, and it was then that—"

"That's right, Pat; it is seven. Well, at any rate, that summer I was running freight and was standing pretty well ahead for passenger. I often wondered if I should be lucky enough to live to see myself punchin' tickets and, honestly boys, when this thought came to me I'd watch the job pretty close, for I had passenger fever as bad as any of 'em ever get it. One day we were called for 84 which as lots of you remember left Elkhart at 9.10 a. m. Maybe you've heard, too, what a corker it was for work. Then, Fullerton made up for us by bad dispatchin' what it lacked to make it one of the hardest jobs out of doors. It would have been tolerable if the pit hadn't opened about then, but when Storrs began to stack his gravel at Kendallville, which was the outlet at the main line from the pit, we just felt that we wanted to tie up right there. The trip I am talking about in particular had for us one of the toughest days I had ever seen, and already upon my arrival at Kendallville I had filled my third page in the train book. You know this means better than 120 cars handled, and in less than fifty miles at that. We had just nicely anchored there when Schumm comes out with both hands full of card bills, and a message between his teeth which I knew was for me.

"'Take thirty loads of gravel from Kendallville,' it said.

"I could not repress an uncomplimentary expression, which arose at the order.

"'Does that d——n leatherhead imagine they are 'straw hats?' We have forty-five cars now, with orders to take all eastbounds. We'll not get in in time for Sunday-school,' I said considerably worked up over the prospect of hot boxes and numerous other troubles, incident to handling long trains whose chief tonnage was next to the caboose.

"Notwithstanding all our kicks and complaints we were soon making excellent headway, and in less than an hour were sitting in the cupola watching the serpentine course our engine was taking us as she nosed around the curves east of town. I had just finished noting the numbers on my report, when my brakeman leaned over and said:

"'What's at Waterloo, Bob?'

"I held up nine fingers, too weary in body and mind to say nine cars.

"'Take 'em all?' he asked, giving me a cynical look which plainly said, 'If I

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were running this train, I'd show 'em where to back in.'

"I merely handed him the order I had received, which, while silencing his questions about my intentions, brought forth a string of blasphemous words that made my hair rise.

"'Well,' he said, after exhausting his venom, 'when do you expect to get in?'

"I simply shook my head.

"'Nine at Waterloo; twelve at Butler; one at Edgerton; one at Melbern; six at Bryan; take no cars between Bryan and Wauseon,' he read. 'Whoopee! Gimme an ax,' he cried, 'till I smash him. None between Bryan and Wauseon! Twenty-two miles, and take no cars. Well, he'll die of enlargement of the heart, the—the —poor—there, by gosh I smell a hot one already!'

"Sure enough, we could already smell the odor of hot journals, and we knew that we might expect plenty of work in caring for them. I did not see Mort after we left Butler, where we lighted our lamps, until we had left Wauseon, where we extinguished them at daylight. All night long I saw his light flitting alongside the train, while I was busy, assisted by a 'green' man doing work ahead. But to get at the point of my story. We arrived at last at Wauseon and pulled in to clear. After doing our work there I went to the office and was greeted by Louie Stoner, who was then holding down the night job.

"'Hello, Bobby! Got here at last, didn't you? Man at Ky wants to know how many cars you have.'

"'Yes, I'm here, or all that's left of me. I'm so tired I can hardly wabble. Tell him I have seventy-two cars—all through. What's east of here to go—any orders?'

"'Don't take anything east of here,' he said. 'No. 1 has two sections; No. 8 has two, and No. 3 is late; guess you will see daylight here, Bobby, before you get out. There's my old coat and a pillow on that table. Turn in, old man, and if anything comes I'll sign for you and call you when you can get out.'

"I needed no second invitation to lie down. Never had a couch felt so downy—so inviting to tired limbs. My eyes closed to the ticking of relays and noisy sounders, which was like the sweetest of music to my ears; I floated peacefully into dreamland. While lying there, Louie's voice came to my ears.

"'Here, Bobby, is one for you,' meaning that he had a train order for my signature.

"I arose and read, 'No. eighty-four (84) and extras five-thirty-one (531) and four-twenty (420) will meet at Harrison.'

"My mind received the impression and then relapsed into a dreamless slumber from which I did not awake until I felt Louie gently shaking me, and saw a bright sun shining in my eyes.

"'Sorry to wake you, Bobby. You were pounding your ear awful hard, but 3's just gone, and everything else. So get out of town and I'll shut the switch.'

"I did not shake off my drowsiness for some time, in fact, not until I had bathed my face and climbed into the cupola, where I drank in the fresh, cool air of the morning. I had just reached this position when I noted we were passing Harrison, a siding between Wauseon and the beginning of the double track, and at which place there was a telegraph office. Instantly I recalled something about a train order I had signed, making Harrison a meeting point, but so vague was my recollection that, try as I might, I could not recall it. I looked ahead, but nothing like an opposing train met my anxious look. I had a nervous feeling, an oppression, that none know, except it be him who has made an error. At last—when we were nearing the double track—it dawned on my mind like a flash—'Extras 531 and 420 at Harrison!'

"My God! All my hopes—how they fell. I rushed over ahead when we stopped for water, and there, awaiting our arrival, stood extras 531 and 420. 'Yes, it is an awful reality,' I said aloud. I ran to the office, and said:

"'Kope, ask Wauseon what orders I signed while there; I must have left them; I was asleep.'

"'Not any, he says.'

"'He's mistaken. Tell him I signed order to meet extras 531 and 420.'

"Not until he had asked the dispatcher, who replied in the negative, was I convinced that I was in error. But who will ever explain how, in my dreams, I came to receive orders to meet two trains which were actually on the road, and of which I had no knowledge, for they left their terminus after I went to sleep?

"The impression was so vivid, and my nerves so wrought up, that I could no longer feel like assuming the responsibility of running a train under conditions like those of the night I had my fright, and at the first opportunity I sought employment in a different service, where 'green' men are not imposed upon you. That's how I came to be clerking for the 'Old Man.'"

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A Mistaken Omen

By Geo. W. Downing

THE months of December and January had shown an unusual record for disastrous wrecks upon the railroads, and the L., T. & G. had not escaped her share of them. News of bad wrecks had been coming in from all over the country, and it seemed as though the hand of Fate was resting too heavily upon the boys, throwing a gloom over railroad circles and causing an enormous expenditure both of life and money.

I had recently been promoted from freight to passenger service and given the run Nos. 25 and 26. This was one of our fastest runs between Central and Carbon, connecting there with Nos. 203 and 204, fast trains from St. Louis and New Orleans, respectively. It was a turn around trip of 115 miles, and we often made the run one way with from three to five coaches in one hour and five minutes, including two stops and a slow-down for the new concrete bridge over Clear Creek, aggregating a delay of seven minutes.

It just seemed to me that night as if I couldn't go, when the caller sang out: "25 on time, Downing!" Out doors it was chilly and a heavy fog had settled over everything, and it settled over me, too, before I had reached the roundhouse.

Our engine for this trip was the 942, and I found things in a terrible mess, lamps empty and dirty, oil cans and lubricator empty, and the cab dirty. She was a good old mill, but showed that she was neglected and abused. She was not assigned to any particular run, but was used on anything and everything. Consequently none of the engineers cared enough about her to speak a kind word for her or look after her a little, although her good qualities were plain to be seen. With all necessary repairing done, she would be as fine an engine as we had in the shops.

All the time I was attending to my various duties, cleaning and lighting the lamps, filling the oil cans, sweeping the deck and otherwise getting the 942 ready for our midnight trip, I was inwardly dreading to go, and was wishing I might have stayed home with the little woman there. Another thing that depressed me, beside the fog, was the fact that the morning before, in just such a fog as this, the fast passenger No. 3 had crashed into the rear end of the St. Louis passenger, injuring No. 3's fireman and a woman on No. 203.

It was ten minutes before leaving time, and we had to run down to the mine for coal before backing down on to our train. When I saw that the tracks ahead were hidden, save for the glare of the headlight, my low spirits speedily descended another notch. We were soon coupled on to the train ready to go, and when the conductor gave us the high-ball Joe pulled the throttle open and the lights of Central began to disappear rapidly in the gloom.

There was not a smoother engineer on the road than Joe. I had fired for him two years before on freight, and now we were brought together again on passenger, bending our energies to make both ends meet. The way he could get her over the ties with so little exertion for the fireman's back was a feat of railroad engineering seldom accomplished by any man. The great iron monster went speeding through the darkness as though the kindly touch of Joe's hand on the throttle was urging her on in an endeavor to more than satisfy his every desire for her.

Matters went smoothly till we reached Moonfield, a blind siding some thirty miles from Central. At this place there is a heavy left curve and altogether it is an ugly and dangerous place on a dark and foggy night. To go back a little: As we had returned from taking coal a light freight had left Central and had, of course, reached Moonfield ahead of us. They, knowing the time we were due there, headed into the passing track and stopped just to clear the main track.

The fog had lifted a little, making it possible to see a switch light some forty or fifty car lengths. We had gained a speed of about sixty-five miles an hour in descending the long grade from Tamaroa. I had just put in a fire and taken a seat

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on the left side, and was peering into the darkness ahead when I caught the faint gleam of a red light. The engineer noticed it at the same moment. After a few seconds of silence I arose, pressed my face close to the front window of the cab and studied it intently. Presently Joe called out:

"George, what in the devil is that red light down there?"

I leaned out of the cab and strained my eyes to see better, and then a terrible thought flashed into my mind.

"It's an open switch!" I yelled.

At the same time I heard the air go into emergency, and the reverse lever hit the back notch of the quadrant. Sand was running freely on both rails and I could feel the train checking her speed, but the distance was too short, and death was staring us in the face. All this took but a second. As I made for the gangway I gave one thought to the little woman and determined to save myself for her sake. I got down on the bottom step, while nearer and nearer we approached that horrible red light. I reached for the hand hold but there was none there, and on the icy step I slipped. I felt myself falling and grabbed for a support, catching and clinging to the squirt hose which hung down the side of the cab. My feet touched the ground, but I knew it meant death to drop on the ballast ties. The strap on the back end of the side rod, in its swift revolutions, touched me on the knee, and then, with a sound like the rush of a cyclone, we passed the caboose and sped on our way in safety.

I saw the light freight being left far behind and at once comprehended the situation. By a tremendous effort I succeeded in gaining the deck of the engine. As I stuck my head into the cab Joe called to me to pick up his cap which was lying in the coal pile. My cap was gone, and my knee was awfully sore and lame, but I was too thankful for my escape to growl over such little matters. When we reached Carbon I asked Joe how we got by them.

"Why," said he, "the main track switch light was out, and the red light we saw was on the back end of the caboose."

The carelessness of the switch tender, who failed to light the switch lamp, and that of the brakeman, who failed to take in his red light while standing in to clear, came near causing the death of a fellow creature. Such things are not condemned enough, and those who are responsible for these matters are not punished severely enough and shown what serious accidents might occur through their heedlessness.

The Right to Labor

Out on the roads they have gathered, a hundred thousand men,
To ask for a hold on life as sure as the wolf's hold in his den.
Their need lies close to the quick of life as the earth lies close to the stone;
It is as meat to the slender rib, as marrow to the bone.

They ask but the leave to labor, to toil in the endless night,
For a little salt to savor their bread, for houses water-tight.
They ask but the right to labor and to live by the strength of their hands,
They who have bodies like knotted oaks and patience like sea sands.

And the right of a man to labor and his right to labor in joy—
Not all your laws can blot that right, nor the gates of Hell destroy.
For it came with the making of man and was kneaded into his bones,
And it will stand at the last of things on the dust of crumbled stones.

—Edwin Markham.

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The Wabash Injunction

A VERY small man can abuse a very large horse with impunity. The horse has the physical strength to bite, to kick, and to kill his tormentor—but he does nothing of the kind—he simply shuts his eyes and dodges the blows as best he can. A very small class of the people can and do abuse the masses of the people with impunity. The masses of the people have the political strength to curb, to reprove, and to exterminate their tormentors—but they do nothing of the kind—they simply shut their eyes and dodge the blows as best they can.

Working people in the United States have been in the vast majority at every election since the birth of the Republic, and yet have never had a representative in either branch of Congress. Is it that a workingman is not sufficiently intelligent to represent other workingmen in legislative matters? Or is it that workingmen are not sufficiently intelligent to elect representatives of their own class to the national legislative body? It is one or the other.

Working people lament and protest against "government by injunction"—groaning and dodging its tyranny, not unlike the horse that is belabored by its cruel master—and yet they vote for the candidates whose party principles are for "government by injunction." Only the other day an anti-injunction bill was proposed to the legislature of Indiana—and an opponent, in ridicule, said that it was a part of the "Chicago Platform," *which killed the bill!*

Workingmen know, unless they are like the horse, that they have it in their power to defeat every member of the House of Representatives at coming elections, and to defeat the party in each State that is responsible for the election of the present Senators—*but they won't.* They will dodge, and shut their eyes—and follow the red-fire and the brass-band. O Lord, will it ever be thus!

During the past several months the employes of the Wabash Railway Company have been petitioning and beseeching President Ramsey of the company to grant them certain concessions in the revision of working rules and to increase wages in proportion to the increased expenses of living. The following is "a statement of the firemen of the eastern division of the Wabash," which was published in the Springfield (Ill.) News, of February 27th, and, therefore, is not a Brotherhood document, but the free espression of opinion of the employes of the Wabash Railway:

To the Public: As the Wabash Railroad Company has given out its side of the story in connection with the grievances between President Ramsey and the Brotherhood of Locomotive Firemen, we deem it just to explain the true situation as we have it. Four years ago we sent a committee to St. Louis to meet President Ramsey in regard to adjusting the existing differences. They remained forty-eight days in St. Louis before meeting President Ramsey, and when they met he promised to adjust everything satisfactorily, which brought the committee home, fully convinced that President Ramsey would do what was right. He issued bulletins from time to time in our favor, but none was ever lived up to. Two years ago we again sent a committee

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to St. Louis with the same grievances, and again he promised to adjust them, and again issued bulletins in our favor, and again they were ignored.

This time we sent a committee to St. Louis not only to ask him to adjust those grievances, but to sign a contract between himself and us, as other roads do, so we would be assured that they would be lived up to. Now he has issued bulletins and offered more than we ask, but flatly refuses to enter upon a contract with us. On the 9th of this month he promised to sign a contract, but when the date came he flatly refused to sign anything.

To show that the Brotherhood of Locomotive Firemen are not in favor of a strike, we will call your attention to the fact that we went to St. Louis on the 14th of November, prolonged our stay purposely to give President Ramsey every opportunity to settle peacefully, having had the advantage, which he admitted on several occasions during the winter. If things do not go on as smoothly as we expect them we don't want anyone to say that it was a hasty step on our part. To show that our demands are just we can show you young and vigorous men that fired these monster engines and did all work connected with them that are now mere skeletons of their former selves, and their lives are almost cut in two.

Then, here is a statement sent to the St. Louis Post-Dispatch for publication by a conductor, a Wabash employe who voted against the strike:

The real grievance is not a case of wages. A violation of the old schedule is one of the causes of complaint. This is done by the company putting on preferred runs with regular crews that get a monthly salary. This cuts the pay for brakemen from 2 cents a mile to about 1¼ cents, conductors from 3 cents to 2 cents, while engineer and firemen receive the same for working on these trains as for any other freight train. But this is not the worst feature of the arrangement.

After the company had these runs well established the managers commenced to pile on the abuses so fast that one could hardly believe the orders posted in the bulletin books.

The first of these was that crews on Detroit and Chicago runs, after running 270 miles, switch out the merchandise and take it down town without additional pay. The next was 101 miles each way, added to the St. Louis merchandise run, making 202 miles in the round trip additional with an increase of about $3 per month. This additional mileage alone would make a brakeman $60.60 per month as it is a daily run, saying nothing of the 200 miles he had already made.

The next was the Detroit and Chicago crews, after making 270 miles, would wait at Delray until cars are received and take them down town before being relieved.

But this is the straw that broke the camel's back: Not satisfied with all this for nothing, they put two engines on and make them handle a dead freight train outside of the high-class, and now they wonder what we are kicking about. After we work like slaves all winter in all kinds of weather without rest, often for 60 hours at a stretch, we are told we have nothing to complain of.

In the spring, when navigation opens up and business drops off these preferred crews, with the big engines and double-headers can handle about half of the business, and the rest of us can eat dried snowballs or wait until nice, cold, stormy winter comes around again, with its sleet and ice on the running boards on top of the cars.

The Adams injunction even takes away the right to quit the company's service, and if made permanent they can hold men as bonded slaves. Now, I, for one, an O. R. C. man, and one who voted against a strike, believe in upholding the B. of R. T. and B. of L. F. to the last ditch.

The issue that would have precipitated the strike, but for the injunction which forbade it, was the arbitrary ruling of President Ramsey that the same service on one side of a river was worthy of less consideration than on the other side of the river. A train might run over the Wabash Railroad from Chicago to Kansas City, and the same crew might serve the entire distance, but as long as that train crew served in Illinois it would not receive the advance in wages he was willing to pay in Missouri.

According to President Ramsey railroad men who live east of the Mississippi River are not as worthy as those who reside west of the Mississippi River, and Canadians are not as good as either. He is willing to pay his employes in Missouri more wages, for identically the same service, than he is willing to pay his employes in Illinois, and he is not willing to pay his employes who are subjects of Great Britain as much as his lowest-paid Americans. If President Ramsey is able to convince his employes that there is just this distinction between Americans and Canadians he will save money, of which he can boast to the stockholders of the Wabash road—but the trainmen and firemen believed that they were not sheep, goats, and pigs, to be graded according to whether they are Missourians, Illinoisans, or Canadians. It was to establish equality of pay for the same service rendered to the same employer that the strike was indorsed by the trainmen and firemen.

If President Ramsey's purpose is accomplished, then railway employes in Illinois, Indiana, Ohio, and Canada will have to accept their degradation, will by silence have to acknowledge the superiority of railway employes in Iowa and Missouri. If this experiment is successful on

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the Wabash, why should not all railway companies "grade" their employes according to the States in which they reside. If a Missouri employe is better than an Illinois employe, why is not an Illinois employe better than an Indiana employe, and an Ohio employe of less value than one from Indiana, and so on?

By instructions of the trainmen and firemen employed by the Wabash their representative committee selected from among themselves, made a final demand upon President Ramsey, with the warning that unless redress was granted a strike would follow. These instructions had been approved by a vast majority of the trainmen and firemen through a referendum vote. This representative committee had called to its aid the executive officers of the trainmen's and firemen's organization, from which organizations they expected financial benefits, for which benefits they had subscribed.

During an armistice of five hours, which President Ramsey had requested, the officials of the Wabash Railway by some method induced a federal judge to issue an injunction which forbade the strike. By the advice of the executive officers of the trainmen's and firemen's organizations the injunction was obeyed, and no strike was ordered, as would have been had the instructions of the Wabash trainmen and firemen been obeyed. The situation was this: The trainmen and firemen employed by the Wabash instructed its representative committee, composed of themselves, and the executive officers of their respective organizations to order a strike; Judge Adams, of the federal court, instructed this committee and executive officers *not* to order the strike. The federal judge was obeyed, for not to have done so meant imprisonment for every one who participated in the strike.

If a member of either the Trainmen's Brotherhood or Firemen's Brotherhood should criticise the judicial act of Judge Adams while this injunction is pending the Judge has the power, and probably the inclination, to send the critic to prison for "contempt of court," notwithstanding the fact that a large part of the public press has editorially shown its contempt for Judge Adams. This being the case no criticism will here be uttered; we will carefully abstain from denouncing the judge as a judicial freak who hopes to gain favor from corporations by serving as their tool in times of emergency. It will be remembered that one of the first federal judges to thus serve corporations by issuing injunctions against strikers was Judge Taft—and Judge Taft has been highly honored ever since—President McKinley appointing him Military Governor of the Philippine Islands. Perhaps Judge Adams hopes for like favor, but let it be here understood that we do not make this insinuation. If Judge Adams has prostituted his judicial office for the purpose of aiding Money in its war upon Man no such charge will here be made. This charge may be true in every detail, and it may be that Judge Adams should be impeached for so prostituting the federal judiciary, but we will not even insinuate that these charges are true, for to do so might be considered a contempt of court, and this is something that we are determined to avoid.

But perhaps it will not be a violation of the "law" (God save the mark!) if we do publish what others have said about this —this—this l-e-a-r-n-e-d judge.

It may be of interest to learn that Judge Adams is a heritage from the Cleveland administration.

Some defenders of "government by injunction," who also excuse or approve the "steering committee" of the late Senate for killing the anti-injunction bill, are trying to explain that Judge Adams' injunction "does not prevent the employes from striking, but only prevents the outsiders from provoking the strike." This class of critics are afraid that "something is going to drop" next election, and they desire to appease the wrath of working people who vote. The injunction is directed against the employes of the Wabash Company, for *nearly all who are mentioned in the restraining order were working for the Wabash*, and if any kind of a strike had taken place the same authority that forbade the strike being "ordered" might also have imprisoned every man who refused to work for the wages that the Wabash was pleased to pay.

Here are some comments from those who do not come under the jurisdiction of the injunction:

Indianapolis Sentinel.

The Sentinel does not profess ability to judge of the merits of the wage question in the Wabash case, but no technical knowledge is needed to appreciate the fact that the injunction issued against the men is a very radical step. The defenders of trusts and advocates of government by injunction heretofore have always professed assent to the propositions that employes had the right to organize and to strike. These two rights have

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been recognized as unquestionable. But now comes this injunction in these words:

"We, therefore, in consideration thereof, and the particular matters in said bill set forth, do strictly command you, and each and every one of you, individually, and as representatives of the Order of the Brotherhood of Railway Trainmen and Brotherhood of Locomotive Firemen, your and said organizations' representatives, clerks, agents and attorneys, and all others who may be aiding and abetting you, or them, or acting in concert with you, or them, and under your or their direction, until the further order of this court, absolutely to desist and refrain from, in any way or manner, ordering, coercing, persuading, inducing, or otherwise causing, directly or indirectly, the employes of the said, the Wabash Railway Company, engaged in or about the operation of its trains within the United States as brakemen, switchmen, or locomotive firemen, to strike or quit the service of said company."

Here is a plain and simple injunction against a labor organization's ordering or even counseling a strike. And where does that leave labor organization? Obviously in a condition where it is absolutely powerless to protect itself if it obeys the law. Grand Master Morrissey of the Order of Railway Trainmen realizes this, and says: "To this command, as law-abiding citizens and organizations, we bow in submission. We will respect it because we recognize that, until dissolved, it is the law. While we view the action of the court as subversive of American rights and privileges, and, we believe, contrary to common justice and fairness, we utter no defiance to its mandate and indulge in no heroics. We will, however, contest the proceeding to the end, for, if Judge Adams' order is written into the laws of our country, organization of labor, which is today the hope and protection of those who toil, can no longer contribute its beneficent influence in bettering the condition of the working people. In this effort we believe we will not only have the support of organized labor everywhere, but all right-thinking citizens who are lovers of human rights."

It may be worth while to remind organized labor that before appealing to others it should make some effort to aid itself. For a number of years a large part of its membership has been voting for government by injunction—voting for men who have supported it. Right here in Indiana the issue was drawn as sharply as possible, and what did workingmen do? Thousands of them voted the Republican ticket. Nothwithstanding the record of Senator Fairbanks on the anti-injunction bill he was returned to the Senate, and as a legitimate consequence of such indifference by labor we see both Congress and our Legislature coolly turn down every request of organized labor. If workingmen expect to retain any rights they will have to begin voting to retain them before long. * * *

There is probably nothing before the public that is being watched with keener interest than the injunction proceedings before Judge Adams in the Wabash case. He granted the preliminary injunction to prevent a strike by the employes of the road on the petition of the company. To this the men have answered denying every allegation that seems to be material. They deny that the enjoined brotherhoods have conspired to force the road to recognize them as controlling its employes. They deny that they ever sought to induce the employes to violate the interstate commerce act, interfere with the mails, or quit work in violation of contract. They deny that any strike has been ordered or threatened maliciously.

They admit that their representatives did state that unless the demand of the men was complied with they would strike, but that it would be the voluntary action of the employes affected. On this presentation the naked question is presented whether the courts will enjoin a strike simply as a strike, and that question is both novel and serious. If Judge Adams decides to do so, and is sustained by the supreme court, it puts labor unions out of business, unless Congress limits the power of the courts. Both employes and officials of the roads recognize this fact. It is reported from Connecticut that the New Haven road is prepared to follow the lead of the Wabash in its controversy with its men, and no doubt the same plan will be utilized generally if the courts recognize it.

The sentiment of the unions finds forcible expression at the Kentucky state miners' convention in the following declaration:

"The scope recently given to injunctions in labor disputes makes the judge a czar, with power to restrain a thousand or a million. The power to grant injunctions in labor disputes, except to prevent injury of property, must be taken from the courts."

But as the Sentinel has heretofore observed, talk is cheap. There were lots of resolutions adopted last year and the year before. Hundreds of labor petitions were sent to Congress asking a restraint of the powers of injunction. Congress refused to act, and the most open opponents of the requests of labor were returned to Congress in the late elections. Following this the courts have become more aggressive, and this injunction by Judge Adams is unquestionably an advance on any form of "government by injunction" previously attempted. Some labor unions have objected to compulsory arbitration, but here is compulsory arbitration in which they have very little to say. Possibly the outcome of the matter may be to convince workingmen that if they want to retain their rights they must use their votes as well as their mouths.

John Mitchell.

This order seems most sweeping, and goes much further than any other action of federal officials bearing on the acts of

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labor unions. It is the first time in history that an order has ever been issued against the officers of any organization restraining them from calling union men out on strike. It emphasizes the danger involved in officers of the government assuming unlimited power in such matters. I think it will have a direct effect on Congress and insures the passage of an anti-injunction bill at the next session.

Omaha Bee.

It is refreshing to see the Wabash set up as one of the reasons why the courts should enjoin its employes from striking the obligation it owes under the interstate commerce law to keep its trains moving for the benefit of the public. The railroads are always ready to appeal to the interstate commerce law whenever they want protection from the courts, but the law never governs them when shippers or patrons ask to have the guaranties of the interstate law enforced. "Heads I win and tails you lose" is not in it with the way the railroads play battledore and shuttlecock with the interstate commerce law.

Toledo (O.) Times.

The writ of injunction issued to the orders and members of the grievance committee of the railway employes who have been talking strike on the Wabash System is a revolutionary act on the part of the courts. It is a step which is likely to plunge the courts as well as the strikers into difficulties. Suppose the trainmen can show cause why the injunction should be dissolved. Will not that put the court in the position of endorsing the strike as a means of redress? It paves the way certainly for a national board of arbitrators on the coal strike commission plan. If this injunction is sustained, courts must take cognizance of labor disputes in a way which points to confusion inextricable later.

Insofar as the injunction compels Wabash trainmen or any other employes to work against their will or upon terms that they do not assent to is intolerable. If courts can do these things, then there is no more freedom in America. Wage slavery is a fact. The greatest revolution of modern times has been effected and a long step backwards taken. The people of this country won't tolerate this assumption of power by their courts, local, state or federal.

We trust our hair-splitting friends of the legal fraternity will show us that this injunction doesn't do what it is doing and seems intended to do. Otherwise we are sorry for the court, for it will have to do some masterly back pedalling and that right soon. The courts have mixed into a contest where they have properly no place, in our opinion, and one from which they must withdraw if our present principles of government are to stand. Won't it be funny if they have to endorse the strike?

New York Commercial-Advertiser.

If the injunction granted by Judge Adams in the United States Circuit Court at St. Louis yesterday is upheld by the Supreme Court there will be no more railway strikes in this country. It carries the power of injunction a step farther than it was carried in the famous injunction granted at Chicago on July 2, 1894, by Judges Woods and Grosscup on the application of Attorney-General Olney made through a special solicitor whom he had sent to Chicago for that purpose. * * *

The power to enjoin for the purpose of suppressing disorder by forbidding all interference with the efforts of the company to resume the business that had been interrupted was fully sustained by the higher court. The question raised now by the action of Judge Adams is whether the law justifies carrying the power to enjoin back to the time immediately preceding the strike and applying it to all efforts to interrupt the business of the company by bringing on a strike.

Minneapolis Tribune.

In the recent history of labor troubles many injunctions have been leveled at strikes and strikers, but we believe there has been none exactly like the one granted by Judge Elmer B. Adams forbidding the ordering of a strike of trainmen on the Wabash Railway.

Chicago Record-Herald.

The granting of an injunction by Judge Adams of the United States District Court at St. Louis, restraining the ordering of a strike on the Wabash Railroad, is such an extraordinary exercise of the power of injunction that it may well invite public apprehension regarding the extent to which this arbitrary instrument of the court may be used in the future.

The full text of the writ issued by Judge Adams shows it to be the most sweeping injunction ever granted in connection with a railway strike in this country. That it was secured by President Ramsey while the grievance committee of trainmen and firemen were awaiting his answer to their demands for more wages shows that the railway officials conceived the necessity of resorting to drastic measures to avert the expected consequences of the unfavorable answer. The procedure was therefore of such a startling and unexpected character as to leave the trainmen and firemen no alternative but to respect the mandate of the court or find themselves in contempt. They therefore wisely decided to respect the temporary injunction and to petition the court for its dissolution. Failing in this they will contest the proceeding to the end.

If this injunction stands and is finally written into the laws of our country it is difficult to conceive of the possibility of fixing any limit to "government by injunction." There have been other injunctions granted by the courts in railway strikes, but none so sweeping and far-reaching as this.

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Indianapolis Journal.

The restraining order issued by the United States Circuit Court at St. Louis in the suit of the Wabash Railroad Company against the officers of certain labor unions is a new departure and a distinct advance over any injunction heretofore issued. It is a new departure in that it is the first time that the interstate commerce law has been invoked against railroad employes to prevent strikes. That law, passed in 1887, was directed against the railroad companies. It was intended to put a stop to certain practices, such as discriminating rates, pooling, etc. In order to bring the railroads under the jurisdiction of the federal courts and enable them to enforce the law, all railroads engaged in interstate traffic were declared to be common carriers and were required to perform certain duties in the way of receiving, transporting and delivering freight. Severe penalties were imposed for refusing or failing to perform these duties. The law makes no reference whatever to railway employes or to strikes or to interference with the railroads in the performance of the duties imposed on them.

It is notorious that for years past the railroads have secretly evaded or openly violated some of the leading provisions of the law, and the Interstate Commerce Commission has been unable to enforce obedience to it. This is the first time that it has been invoked for the protection of an interstate railway against a contemplated strike by its employes, and it has been measurably successful. Other injunctions have been issued under the common law prohibiting strikers from using any measures of intimidation or coercion to prevent other persons from working and from picketing, etc., but this order goes further in that it forbids the officers of labor unions from ordering a strike which they claim the men themselves had authorized.

Council Bluffs (Ia.) Nonpareil.

Amazing, to say the least, was the anti-strike injunction granted by Judge Adams of the United States District Court at St. Louis against the officials of the railway employes' brotherhoods. It is true that the scope of the injunction had been so greatly widened by various decisions that the people were ready for almost anything, but they hardly expected such an extraordinary restriction of individual rights as was placed upon the employes of the Wabash Railway by Judge Adams. Doubtful use of the injunction had been made previously, but never before had any court in this country granted a writ restraining labor leaders from ordering an original strike.

In effect, the injunction means that the organized employes of the Wabash Railway can not quit their employment in a body, for they can not strike unless their officers direct them. In asking for the writ the railway attorneys no doubt justified it on the ground that the railway men's unions were conspiring to injure the business of the railroad company; lawyers have a clever way of justifying almost anything, because that is their business. Nevertheless, when the injunction is simmered down it means nothing more nor less than that men are no longer to be allowed the liberty of agreeing among themselves that their conditions of labor are unsatisfactory, and then acting upon this conclusion by quitting together. The intervention of the national officers of the railroad men's brotherhoods at St. Louis did not alter the case any for they were merely acting as the authorized agents of the employes of the Wabash Railroad. In preparing to order a general walkout they were merely carrying out the will of the men.

While there is much in strikes to be condemned and though they lead to much injustice to employers, it is difficult to understand how the right of men to strike can be denied. If all the employes of a great railroad system may be restrained by order of court from ordering a strike among themselves why may not the hundred employes of a small factory be likewise restrained? If a hundred laborers may be enjoined why not a score, and if a score, why may not an individual laborer be restrained from quitting his work, even though he has no contract or agreement for a definite period of employment? Heretofore it has been considered an inalienable right for a man or body of men to quit their employment if it failed to prove satisfactory to them, but the St. Louis decision seems to change this entirely.

Of course, the St. Louis injuction has not been made permanent, and it may not be upheld on a final hearing. It has come to be the custom to grant temporary injunctions on almost any pretext on the ground that a temporary injunction is not likely to prejudice anyone's interests. However, if the St. Louis judge is sustained on later hearings, the employers of the country will be given a new and powerful advantage in their fight against organized labor. Its justice, however, must be doubted.

Chicago Inter-Ocean.

The Hon. Elmer Bragg Adams, judge of the United States Court for the Eastern District of Missouri, has issued what is probably the most sweeping injunction known to modern jurisprudence.

The injunction is addressed to the railway trainmen's and firemen's unions, their officers and members. It commands "each and every one" of them, "individually and as representatives," their "representatives, clerks, agents and attorneys, and all others who may be aiding, abetting, or acting with them or under their direction, absolutely to desist and refrain from" certain acts.

Judge Adams, in fact, prohibits every human being under his jurisdiction not only from "ordering or coercing," but also from "persuading, inducing, or otherwise causing, directly or indirectly,

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the employes of the Wabash Railway to strike or quit the service of said company," and not only from "ordering," but also "advising or otherwise influencing the employes of connecting lines to refuse to interchange traffic and afford facilities therefor."

From the foregoing quotation it will be seen that if a newspaper within his jurisdiction should express the opinion that the demands of the Wabash employes were just, and that the men ought to strike if they were not granted, it would be violating Judge Adams' injunction and its editor would be liable to punishment for contempt of court.

It will also be seen that if any person, even in the privacy of his own home, should advise an employe of the Wabash railway that he ought to leave the service of that company, or should advise the employe of a connecting line that he ought to refuse to afford facilities for the interchange of traffic with the Wabash Railway, such person would be violating Judge Adams' injunction, and would be liable to punishment for contempt.

With the interpretation of the rights of American citizens set forth by the Hon. Elmer Bragg Adams it is interesting to contrast the following from the Constitution of the United States:

"Congress shall make no law abridging the freedom of speech or of the press."

Judge Adams interprets the act of Congress of February 4, 1887, commonly known as the interstate commerce act, as making free speech, when used to induce employes of a railway to leave their employment, a crime punishable by fine and imprisonment.

Against that interpretation, and against the Hon. Elmer Bragg Adams, the American people set the Constitution of the United States. For they are not ready to admit that free speech is a crime.

Chicago News.

Obviously this is something entirely different from an injunction forbidding outside or allied organizations to order a strike. While it does not forbid the workingmen to quit work it does actually have the effect of preventing them from doing so, by paralyzing the agencies which they themselves have created for carrying out their own will. The union men had authorized their officials—members of their own body, of course—to call a strike if certain conditions were not met. The conditions being unfulfilled, the officials are rendered unable to carry out this order. To say that this does not deprive the individual workingman of his right to quit work is to say that men may have certain rights and yet may be deprived of the power to employ the means necessary to get those rights. The injunction, in a word, strikes at the two agencies—organization and concert of action—through which union labor exercises its power.

The spirit in which the railroad men have met this injunction is admirable and entitles them to the strongest commendation. They recognize that as the act of a duly authorized court it is the law and they will respect it until a test can be secured through some legitimate channel of legal procedure. It is possible that the injunction will be dissolved, in which case it will have had only the effect of a stay of proceedings. At the same time, it is worthy of note that, whether its effect be temporary or permanent, the injunction puts in play a principle which if followed to its logical conclusion would lead the country into something like a policy of compulsory arbitration. The course taken by Judge Adams, in fact, presents a remarkable parallel to that followed in New Zealand, where the compulsory arbitration system is established. There, under the law, if a party to a labor dispute appeals to a board or court with a presentation of its grievances it becomes a punishable offense for either side to suspend work. In the case of the Wabash Railway, certain workingmen having proposed a strike to the detriment of the company, the company has placed a check upon such a procedure very much as it might have done under the New Zealand system. Although there is no provision in this country for an arbitration of the merits of the dispute, the tendency of such action seems likely to be to force settlements by conciliation or arbitration.

Chicago Post.

Involuntary servitude can not be restored in the United States. Even the black man has only been disfranchised, not re-enslaved. Labor is free and will remain free, and neither malevolent nor benevolent feudalism will ever be established in this Republic. The freedom of labor, among other things, implies the right to strike for any reason whatever, just as the freedom of enterprise implies the right to dismiss employes for any reason or without any reason or explanation. What legislation has not done and will never attempt courts of equity will hardly be permitted to accomplish by indirection.

In considering the extraordinary injunction just secured by the attorneys of the Wabash Railway Company against the officers of the Brotherhood of Railway Trainmen and the Brotherhood of Railway Firemen, and against committees of the Wabash employes, it is well to bear these truths in mind. The order granted by Judge Adams, to be sure, does not directly restrain the employes of the Wabash from quitting work, either individually or in combination. They are free to strike, to threaten a strike and to meet and take any legal action.

The only question presented by the novel injunction is this: Is there any principle of law or of equitable jurisprudence which justifies a judicial order to third parties enjoining them from "persuading," "inducing," or otherwise causing, directly or indirectly, the employes of a given person or corporation—no violation of contract being intended—to quit his or its service? * * * But the injunction will not stand. It is arbitrary and unwarranted.

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A. J. Trude, Prominent Chicago Attorney.

The mere fact that a railroad company is a common carrier would, in my opinion, not be sufficient grounds for such an injunction to issue, although there are precedents for such proceedings when this is taken in conjunction with the laws regulating interstate commerce and the carrying of government mails.

The injunction is sweeping and includes not only persons to whom it is directly addressed, but all others who join with them, expressly or implied, to bring about the purpose that the injunction was intended to avert. I doubt if a more general legal restraining paper was ever issued.

The evident seriousness of the situation can be detected in every line of Judge Adams' order. Whatever may be the legal grounds for such an injunction to issue the reckoning is bound to come sooner or later.

Such papers from the courts only serve to emphasize the seriousness of these difficulties.

Indianapolis Sentinel.

Having discovered a federal judge of the injunction-while-you-wait stripe, President Ramsey can now tell the Wabash employes to be Vanderbilted.

Resolution of Brotherhood of Locomotive Engineers in Meeting at Houston, Texas.

Whereas, President Joseph Ramsey, of the Wabash Railway, took unfair advantage of the time given him to consider propositions submitted by the firemen and trainmen under his jurisdiction to go into court and secure an injunction restraining their officers and committees from declaring a strike; and,

Whereas, We consider the issuance of the said injunction by a federal judge a gross usurpation of power, a serious menace to the most cherished freedom of American citizens, binding them by judicial bonds in a condition of involuntary servitude; therefore, be it

Resolved, That the Brotherhood engineers of the Southwest, in union meeting assembled, express emphatic disapproval of the act of President Ramsey as a cowardly abuse of a truce; and, be it further

Resolved, That we condemn the injunction of Judge Adams as an unwarranted act of tyranny.

Harrisburg (Pa.) Independent.

The injunction proceedings had in a St. Louis federal court in behalf of the Wabash Railroad, yesterday, as defined by Solicitor Blodget, are within the law. That is, Mr. Blodget states that the injunction runs only against conspiracies to interfere with interstate commerce. The only danger, therefore, is in the definition of the word conspiracies. Webster's dictionary defines conspiracy as "a combination of men for an evil purpose; an agreement between two or more persons to commit a crime in concert." If conspiracy is thus construed the injunction issued by Judge Adams yesterday is all right.

Peacefully quitting an employment is not that kind of a combination and quietly soliciting or even persuading others to leave their work is hardly that sort of an agreement. If a man is bound by written contract to service for a given time or under certain conditions an injunction would lie against him individually, no doubt. But to allege that quietly quitting employment by one or a thousand men not so bound is a conspiracy, even though the action prevents the Wabash road from fulfilling its obligations under the interstate commerce act, would be an unadulterated outrage and a criminal infringement of personal liberty.

The public will watch with curious interest and deep concern the development of this legal comedy or tragedy, which ever it turns out to be. The federal courts are too ready to lend their processes to corporations to oppress employes and it looks as if the purpose of the proceedings in question are in pursuance of that unhappy trend. The statement of Mr. Blodget is reassuring, however, and unless he and the court misconstrue the word conspiracies, no harm will follow. But if this hope is disappointed they are "sowing to the wind to reap the whirlwind." They are "cherishing up wrath against the day of wrath."

Judge Tuley, for Thirty Years on the Chicago Bench.

We will reap the whirlwind some day from the seeds so sown. I am not surprised at an injunction of any kind being issued, I regret it because I believe that the issuing of such writs of injunction brings the administration of justice into contempt. It breeds discontent. The day may come, in the not distant future, when the working classes will have political control and will appoint judges who will also issue writs of injunction—in their favor. I see no reason why a writ of injunction should not as well be issued against a railroad enjoining it from discharging any employe or from failing to pay such employe a certain fixed rate of wages. It would be no greater departure from the true principles that ought to govern when issuing such writs.

We judges are getting to be the whole thing in government. We are approaching a condition that will be without precedent in the history of the world, in which the governing power will be exercised by the judges, with the executives and legislators as mere figureheads in carrying on the government. It is time to call a halt.

Columbus (O.) Citizen.

This is a sweeping proposition, indeed. That the Federal Government can step in and say when men shall work against their will at wages not satisfactory to them, and say, furthermore, that they shall not attempt to persuade others to take joint action with them for the ameli-

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oration of conditions of which they complain, is an assumption of power never contemplated by any law now on the statute books of the United States or of any State, and not justified by a single word of the American Constitution.

If the courts of this country desire to be held in popular opinion as inimical to the common welfare, they can find no better way to promote their object than by such exercise of the power of government by injunction as is implied in this order of Judge Adams. The ease with which such injunctions can be obtained and the manifest injustice and un-Americanism of them must convince even the most conservative citizen that something must be done to define the powers of the federal courts with reference to the personal liberty of all citizens. It will not do to call half the population "anarchists," as was done in 1896 and 1900, because they vote against the violation of personal liberty by the arbitrary edict of United States judges. Some other answer must be given to the proposition that American citizens have rights that even the courts are bound to respect. * * *

An eastern apologist for government by injunction defends the recent order of Judge Adams against the Trainmen's and Firemen's Union of the Wabash Railroad on the ground that it is temporary only, or, in the language of the injunction itself, in effect "until the further order of the court."

"Its practical effect," declares this authority, "is to forbid any sudden tieing up of the road and its traffic by a strike order. The strike may yet come, and there is no pretense that men can be permanently enjoined from quitting work either individually or in combination."

Here we have the doctrine that permanent government by injunction would be an intolerable invasion of natural rights, while government by injunction that is merely temporary is entirely in accord with a sound public policy. It is difficult to see the justice of such a presumption. In the very nature of the case, if men have a right to quit work "individually or in combination," it must be a right unassailable temporarily as well as permanently. As a matter of fact almost all injunctions of the kind under consideration are intended to control movements that are purely temporary in character, but designed to have permanent effects. There is no guarantee, however, that an injunction which prevails "until the further order of the court" is a temporary injunction. It is merely so called because the court has not yet made the injunction permanent; but the very language of the order shows that the period of its effectiveness is indefinite and entirely subject to the will of the authority granting the injunction.

It would seem to be self-evident that the country needs some plain definition of the powers of the federal courts in these cases. It would seem to be self-evident that a temporary injunction may work as great an injury to the employed as a permanent one. It is certainly impossible to apologize for an unjust act of a court or any other authority on the ground that it is merely temporary. The whole subject of government by injunction deserves thorough investigation, without prejudice and with due consideration of the claims that may be urged by those who oppose as well as those who defend the modern tendency of federal courts to circumscribe the personal liberty of individuals. In admitting the urgency of this question no slight upon the dignity of American courts is involved, and there is no reason for the common accusation against those who urge its importance that they are "anarchists" or in any sense inimical to government by due process of law. Meanwhile the question at issue is an open one and will never be settled until it is settled right.

Joliet (Ill.) News.

The full import of the injunction granted by Judge Adams, of St. Louis, against the railway men's unions in the Wabash matter, is beginning to dawn upon the people of the United States and from every quarter of the nation there comes a mighty protest. The people seem to be finally aroused and the spirit of Altgeld, the leader in the fight against government by injunction, seems to live again in the fiery denunciations that are heard on every hand against this latest attack on the rights and liberties of the people.

Even the usually conservative newspapers can not restrain their honest convictions, for they see to what end the policy is tending. It was government by injunction that first overruled the constitutional right of trial by jury, a right that was one of the foundation stones of the Republic and a right for which our ancestors fought and died.

The right of free speech has gone too under government by injunction and even the freedom of the press has been taken away in more than one instance.

Government by injunction is but the stepping stone to a complete industrial slavery.

Chicago Socialist.

Just a few more bumps and the working classes will come to their senses. This injunction has been classed as infamous, but it is just the thing to be expected. The infamous thing is that labor having eighty-five per cent. of the voting power should fail to exercise it.

N. Y. Special to New Orleans Picayune.

"If the Wabash Railroad Company can sustain its position, the death knell of strikes on interstate railroads has been sounded."

This is the opinion expressed in financial circles today on President Ramsey's aggressive action in obtaining an injunction restraining the workmen's organization from ordering a strike on his system.

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It was pointed out that the obligations of carrying companies to the Interstate Commerce Commission had never before been interposed as a legal bar to strikes.

Should the injunction be made permanent, it was said that a blow would be struck at labor organizations similar to that which occurred in England when the Taff Vale Railway Company was awarded substantial damages against the Workmen's Association for ordering and maintaining a strike to the detriment of the company's business.

Chicago Chronicle.

It is the plain duty of every good citizen to obey the laws, not as he may understand them, but as they are interpreted by those in authority. In other words, it is the duty of every good citizen to respect the properly constituted authorities.

If men rejected that rule of duty and everyone set himself up as his own judge of the meaning of the laws and disobeyed them as construed by courts and magistrates government would be at an end. Instead of law and order we should have anarchy.

This by no means implies that there is no remedy for judicial and magisterial wrongs. The signers of the address referred to indicate one remedy—the first to be invoked—which is the presentation to the court of the facts and reasons for vacating the order which in the judgment of the men wrongs them.

But this is not the last remedy. If the men fail to secure from the court a recognition of what they believe to be their rights, they can turn from the judicial to the legislative branch of the government, which is vested with a certain judicial function for the express purpose of protecting the people against the exercise of tyrannical power by the judicial branch.

To state it plainly, if any man believes he suffers from abuse of power by any United States judge, he can invoke the power of impeachment. This power is expressly granted to Congress in the Constitution of the United States, and it can be invoked by any individual or corporate association for protection against judicial wrong.

This is the only proper course for any aggrieved party. Disobedience of an order of court is rebellion, and not to be thought of by any good citizen. Impeachment is a lawful and orderly proceeding, and it may be the duty as well as the right of individuals, supported by organizations, to resort to that proceeding for the protection of their rights.

Chicago Post.

Those who have attempted argument in support of the anti-strike injunction in the Wabash case can not be congratulated either on their logic or on their grasp of first principles. They profess to concede the right to strike not only to individuals, but to legal combinations and organizations of individuals. They point out that the employes of the Wabash are left free to walk out at any moment, and to call a meeting to consider the advisability of striking and vote upon it. And they jump to the conclusion that the injunction issued by Judge Adams violates no right of American citizenship.

But this conclusion begs the whole question and indicates extreme confusion of thought. The right to strike necessarily implies the right to advise a strike, to induce or persuade or peaceably "cause" a strike. You have the right to advise a man to do anything which the law allows him to do. You may not advise murder or arson or forgery, because these things are criminal. A strike or lockout is not criminal, and only the advocates of industrial despotism would make arbitration compulsory and deprive the employer of the right to discharge and the employe of the right to quit. In the name of common sense, then, how can it be wrong for any man or any number of men to advise or persuade others to exercise their right of discharging, or of quitting, as the case may be?

The sophists of the new feudalism will find the question unanswerable. And therefore so much of the restraining order in the Wabash case as forbids the officers and representatives of the trainmen from "advising" or calling a strike in accordance with the rules of their organization falls to the ground. Can equity restrain the newspapers in a given jurisdiction from advising employers to discharge certain men, or workmen to resist, by striking, say, an arbitrary reduction of wages? Certainly not. But if editors may advise strikes and lockouts, why may not officers and representatives of a labor organization?

The highest court of New York has decided that men acting in concert may threaten to do anything which the law permits them to do. The greater includes the less. To say that a man may strike but not talk about striking is a manifest absurdity. It is equally absurd to affirm that, while strikes and lockouts are legal, advice and moral suasion in connection with either by third parties are unlawful. To repeat, we have the right to advise and persuade men to commit any act, carry out any policy, adopt any course, which the law allows them to commit, carry out or adopt. A denial of this proposition is conclusive evidence of inability to reason.

Peoria (Ill.) Star.

The injunction which the managers of the Wabash road have secured against the trainmen is about as good an illustration of the dangerous uses to which this legal instrument may be put as could well be devised. When it comes down to enjoining a man from talking, arguing, or persuading another, it is as despotic a use of arbitrary power as can be found in the annals of government. Our fathers held that the inalienable right of an American citizen is to talk and print what he pleases. He is to be held for the consequences of his act, but in the exercise of those acts he is to have full and complete

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liberty. The judge in the Wabash cases absolutely forbids anything of this kind. A man can not even argue with another in order to convince him of the error of his ways. It is to the credit of the trainmen that they accepted the situation and are endeavoring by perfectly peaceful and legal means to have the injunction dissolved. We do not believe that it will stand for a moment. If law is simply common sense applied to business, it certainly ought not to stand, for there is neither sense, reason nor justice in it. The right to issue an injunction ought not to be left to the will of a single judge. It is being distorted and perverted far beyond the original intention. As it is now managed, any small and petty judge for any reason can enjoin any man even from thinking aloud. It is evident that this sort of thing can not continue. We must reduce these matters to some kind of method, and there is great need for a general system that shall take these questions away from the strife and commotion that now accompanies strikes and reduce them to system; that is to say, put them on a basis of arbitration where the rules will be known and where we will not be subject to the caprice of any one man. When we do this we will have done more to bring labor and capital together and settle these questions on the broad basis of common sense than by any other plan.

Grand Rapids (Mich.) Herald.

The injunction issued by Federal Judge Adams of St. Louis against the Brotherhood of Railway Trainmen and the Brotherhood of Locomotive Firemen is one of the most sweeping in the history of industry. A strike for higher wages and better hours was about to be ordered by these brotherhoods among the men belonging to them, when President Ramsey of the Wabash Railroad filed a bill and secured an order for an injunction preventing the strike.

In brief, the injunction restrains the brotherhoods and all connected therewith from ordering the employes of the company to strike, and from in any way interfering with the operation of its trains by the company. The effect of it is to keep the brakemen and firemen at work, whether they will or not, as far as concerted action may go. If the injunction is sustained on the application, which will be promptly made for its dissolution, it will be a precedent validating the doctrine that a labor union can not order a strike, or use its influence in promoting one providing the strike interferes with the conduct of the business of the complaining company—which of course it does in all instances. The bill of complaint makes much of the fact that the road is engaged in interstate commerce, and the strike would therefore interfere with traffic between the States.

The attitude of the trainmen and firemen in the face of the injunction is commendable. Instead of resorting to violence, they have kept at work, recognizing the binding power of the injunction until it is dissolved in a hearing in court. No defiance of the court's mandate is uttered by the union leaders, and no heroics are indulged in. The men look upon the action of the court as subversive of American rights and privileges and as contrary to common justice and fairness. But the strike leaders recognize the fact that the way to proceed is the legal method, and steps will be promptly taken to have the injunction dissolved.

The situation is a serious one for organized labor. The chief tenet of the labor union is that the organization as a body shall fight the battles of its members. Strikes are to be declared by the union and not by the individual members. Now if the law shall be established in the Wabash case that the employers may head off a strike by applying for an injunction preventing the union from ordering the strike and from interfering with the business of the concern by stopping the men from work, it would seem that labor unions would be reduced to nothing more than benevolent societies. If the union is to be deprived of its powers to solidify and direct the action of its members in their controversies with employers over matters affecting mutual interests, then organized labor, which is today the hope and protection of those who toil, can no longer contribute a potent factor in bettering the condition of labor. The decision of the court on the motion to dissolve the injunction will be awaited with greatest interest by all friends of the laboring man the country over.

Boone (Ia.) News.

At this distance it is not possible to look into the merits of this especial case. Injunctions approaching this sweeping denial of right of laboring men to strike have been issued before, but never as a denial of the right per se. A railroad in the hands of the United States as receiver has been protected from strikes by injunction on the ground of such strike interfering with the delivery of United States mail. The present injunction has no such mitigating circumstances and it seems to be a denial of the right of combination among laboring men for the purpose of bettering their circumstances.

No doubt the general public will hail Judge Adams' decision with delight, because it seems to be such an easy way of settling the strike problem. As a piece of cheap notoriety Judge Adams' action makes a hit with a great many people. But it will never stand in a higher court. The right of the individual to quit work carries with it the right of a class of individuals to quit collectively. As long as there is no coercion, the right of peaceful persuasion can not be denied. The strike is baneful, but it is the weapon of the last resort and the only effective one when employers are stubborn and unfair. The injunction is absurd when it is contemplated what would have happened if a different set of men had been enjoined. There would have been a conspicuous absence of hands the next morning and the

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injunction would have been laughed to the winds.

It should be borne in mind, however, that Judge Adams' injunction does not apply to the employes themselves, but rather to the officers of the order, who are enjoined from calling the men out. This does not affect the general import of the decision at law, which is to the effect that the men can not organize and elect officers to work according to their instructions. This is striking at the fundamental principles of labor organization. If the courts can award damages for employes quitting their jobs, then the employes can just as reasonably collect damages for discharge. If the strike is to be declared a contempt of court, then there must be compulsory arbitration in which each side shall have a fair hearing. Many believe that therein lies the solution of the difficulties between labor and capital. But the constitution will have to be reorganized before it can become effective.

Bloomington (Ill.) Record.

This order was issued at the instance of President Ramsey, of the Wabash, and is regarded as the most sweeping and radical action yet taken by any court. It will be noticed that the men are not only enjoined from ordering a strike, but are absolutely commanded not to endeavor to persuade or induce the employes of the company from leaving their work. This is a step farther than any court has yet gone in this country, and will create a great stir in labor circles. Whether this startling order will be made permanent remains to be seen. If it is so ordered then the railway unions will be perpetually enjoined from striking, and concerted action looking to bettering their condition will be a thing of the past. This may seem too far-reaching and preposterous for belief to some, but the acme seems to have been reached by the federal courts, and there can be no more steps made in this direction without reaching the point where revolution is at hand.

The Record regrets that such a state of affairs exist, and stands unequivocally for peace and justice in the settlement of all disputes, but can not approve of the course taken by any court when the result is to rob laboring men of their right to quit their employment either singly or collectively, when they see fit to do so.

Pittsburg (Pa.) Leader.

Railroad managers in Pittsburg are awaiting with intense interest the developments of the Wabash dispute with the trainmen. The injunction granted to President Joseph Ramsey restraining the men from engaging in a strike is an absolutely new point in the affairs of railroads and the outcome is a matter of utmost importance to all railway systems. It is pointed out that if the courts sustain President Ramsey in this action the question of railroad strikes will be settled. There is a marked diversity of opinion among the railroad officials regarding the matter. All are hopeful that the Wabash shall win out and thus establish a welcome precedent, but many of the local railroad men believe the injunction will not hold. A hearing will likely be held in a few days, when some interesting discussion is looked for.

St. Louis Mirror.

Judge Adams may rightly be criticised for issuing his sweeping injunction order in the Wabash Railroad case. The order is another illustration of the disposition displayed by the Federal Courts to arrogate to themselves authority and power granted neither by the constitution nor the enactments of Congress. It justifies some of the apprehensions entertained by those who condemn "government by injunction." The order is, however, not without precedent. In its wide scope, it closely resembles that issued by Judge Jenkins, of the Federal Court, in Wisconsin, in 1893, by which the employes of the Northern Pacific were enjoined from going on a strike. The Jenkins injunction was, however, issued when the Northern Pacific was in the hands of receivers appointed by the Federal Court, and directed against men who proposed a strike on account of a threat to reduce wages. The order of Judge Adams may probably best be compared with the "Gatling-gun injunction" issued by the United States Court, in Chicago, in 1894, at the time of the "Debs rebellion," and which was afterwards approved of by the Supreme Court at Washington. Sweeping injunctions of this kind are justified by many on the ground that public peace and order demand it. Yet this alone, with all due deference to the august justices at Washington, does not justify their issuance. Omnibus injunctions in cases of this kind create bad feeling. They undermine respect for the constituted authorities and the law of the land. They intensify the spirit of rankling bitterness in labor circles, because they are taken to confirm the suspicion that the Federal Courts are more susceptible to the influence of capitalism than to consideration of the rights of the wage-earner. Strikes are, admittedly, a public calamity and a barbarously crude means of settling difficulties. Yet, as long as the law-making bodies have not provided different methods of adjustment, the Federal Courts have no right to act on their own hook and to supply in an unconstitutional that which the the lawmakers refused or failed to provide in a constitutional way. The British High Court of Chancery never assumed the authority to issue the extraordinary writ of injunction in cases of this kind, or in a manner so sweeping. It was always anxious to abide by well-established precedents. Of course, times and conditions have changed. They have not, however, changed so much as to warrant courts in assuming some of the functions of the law-giving body. A court of equity should not be allowed to invest itself with such far-reaching authority. Omnibus injunctions are neither in the interest of the

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workingman nor the corporation. If they are now sought for by the latter at a time when the struggle between labor and capital is still undecided, they may be sought for, ten or twenty years hence, at a time when labor is in the ascendancy and in control of the whole machinery of government and law. Then the injunction may "return to plague the inventor."

Sioux City (Ia.) Journal.

At this distance it is difficult to pass upon the merits of the St. Louis case, and yet, in the absence of definite information, the supposition must be that the injunction will not stand. The right of an individual laborer to quit work when his employer refuses to grant satisfactory working conditions will never be denied in this home of individual liberty. The right of individual laborers to combine for the purpose of strengthening their side of the case in dealing with their employers can not be denied as a matter of law or justice. If the individual can quit work when he pleases the collection of individuals associated in an organization must be granted the same right. If this principle be denied organized labor is deprived of the only weapon it may legally wield in a contest of strength with employing capital. If Judge Adams' injunction shall stand the effect will be to compel a number of individuals by reason of their affiliation in a labor organization to continue working under conditions which are not satisfactory. Such a requirement seems to be wholly at variance with the spirit of our institutions.

Unless there is something in the St. Louis case which has not appeared on the surface it is safe to say that Judge Adams' extraordinary injunction will not, if made permanent, withstand the test of the higher courts. It would be unfortunate for the relations of capital and labor if the contrary should be the case. The effort to make men work against their will is not one which can be successfully accomplished under our system of government, nor is it desirable that it should be.

Wheeling (W. Va.) Register.

The granting of an injunction in the United States Court in the Wabash case restraining officials of a labor union from ordering a strike is conceded to be next to a knock-out for organized labor. It lays the axe to the very root of unionism and almost completes the long list of recent judicial definitions of the status of trades unions in the law.

Dayton (O.) Herald.

This is an extraordinary order and goes beyond all previous attempts to govern by arbitrary exercise of judicial authority, and is the most sweeping ever made against labor organizations. To the credit of the employes, however, they are obeying it. But let us look at and analyze this order. No advocate of government by injunction will venture to assert that it is unlawful for an employe to quit the service of a railway company, for any reason or no reason. Yet the effect of Judge Adams' order is to make it a crime for one man to advise another to do a lawful thing. Judge Adams menaces with imprisonment as a malefactor the man who "indirectly" encourages others to exercise their indisputable right to quit work. With all his executive power the President of the United States could not do that. Have we a creature greater than the creator? Is the judicial greater than the legislative branch of the government which furnishes the laws for it to interpret, or greater than the executive branch charged with the enforcement of the laws and the source from which the judiciary derives its existence? It is the function of the courts not to make laws at their own discretion. Persuading men to strike is not a crime in the United States, and no court can make it a crime. If Judge Adams is sustained in the action he has taken he may with equal warrant of law forbid a workman to ask an increase of pay, or enjoin a railway from discharging an employe, or from refusing to grant a request for higher wages.

Noting this case, Judge Tuley, of the Appellate Court of Illinois, says:

"The issuing of such writs of injunction brings the administration of justice into contempt. It breeds discontent, and we will reap the whirlwind some day from the seeds so sown. We judges are approaching a condition in which the governing power will be exercised by the judges, with the executives and legislators as mere figureheads."

This warning from a long-time occupant of the bench should be gravely considered by those who are seeking thus to invoke the injunction power beyond right and reason. They comfort themselves with the declaration that they represent conservatism against radicalism; yet such a policy is more dangerously radical than any of the methods of their opponents.

Dubuque (Ia.) Telegraph Herald.

The question in the case under discussion is whether the court had warrant of law in issuing the injunction. If it did not, then it has usurped authority. There are so many instances of record wherein this usurpation has been practiced that there is pressing necessity for fixing well prescribed limits upon the judiciary in the employment of the writ. The latter is an essential recourse in law, but we were better without it if it is to be unrestricted and permitted to multiply its oppressions and remain a constantly aggravating menace to individual liberty.

An eminent statesman has said that if the American people ever lose their liberties it will be through the agency of the courts. He uttered a great truth. When courts have, or usurp the power of prohibiting one citizen to give bread to another, when that other has been neither charged, tried or convicted of criminal wrong, as was the case in the infamous Jackson injunctions, or are prohibited

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from walking on public highways in the vicinity of buildings, where the workers are locked out, as was recently the case in California, it is high time to investigate the security of our personal liberty and proceed to divest courts of their despotism and absolutism.

Philadelphia North American.

Lawmakers, lawyers, judges and laymen who think and speak straight are almost unanimous in disapproval of the action of Judge Adams, of the United States Circuit Court, in the Wabash case.

W. M. Springer, of Washington,

Formerly Chief Justice of the United States Court of Appeals in the Indian Territory, says:

"It has been settled by the highest courts in the country by numerous decisions, and the doctrine is no longer controverted, that workmen or employes possess the right to quit work singly or in a body by preconcert of agreement, provided only that they do not interfere with the rights of others, whether coemployes, employers, or the public.

"They have a right to seek an increase in wages by all peaceable means, and meetings and combinations to that end, if unaccompanied by threats, violence, disorder, or attempts to coerce, are not unlawful. They may agree in a body that they will not work below certain rates, and a strike to this end, unaccompanied by any of the foregoing elements, is not an offense.

"The doctrine laid down by the New York courts is this: 'The law permits workmen at least with a limited territory to combine together and by peaceable means to seek any legitimate advantage in their trade. The increase of wages is such an advantage. The right to combine involves of necessity the right to persuade all colaborers to join in the action.'

"This right to persuade colaborers involves the right to persuade new employes to join the combination. This is but a corollary of the 'right of combination.' It is a well-recognized doctrine that the right to issue temporary injunctions should be exercised with great caution, and never except in case of urgent necessity, and where the acts enjoined are unlawful or amount to a nuisance.

"Applying the law as above stated to the language of the injunction issued by Judge Adams, it clearly appears that he has exceeded his authority. The parties against whom the injunction was directed were the authorized representatives of the firemen and trainmen of the railroad company. They had a right as such agents to order a strike. In doing this they were merely exercising the authority conferred on them by their colaborers.

"They also had the right to persuade their colaborers to desist from work, and they had the lawful right to induce their colaborers and new employes by all peaceable means to desist from work. Hence, in so far as Judge Adams sought by injunction to prevent such acts, he exceeded his authority."

Senator Depew.

I do not believe any such injunction can hold.

Des Moines (Ia.) Unionist.

This appears the most sweeping injunction ever issued by a court anywhere. The Jenkins decision in the Northern Pacific case, causing consternation even among lawyers at the time, is so far outclassed that it may in the future be referred to as an infant injunction industry in comparison with the Adams Goliath. To add insult to injury, President Ramsey is said to have notified the firemen and trainmen's committees within two hours after the issuance of the injunction of the rejection of their demands. * * *

That there is a growing contempt for courts is evidenced by the many public addresses of courts and attorneys in defense of decisions and practices. While people bow in submission to mandates of the Adams class, yet where is the fair minded man, whether he be judge, lawyer, or whatever else, that deep in his heart does not view such sweeping writs of injunction with alarm? Labor organizations have petitioned, begged, pleaded with legislators for a more perfect interpretation of the conspiracy laws and consequent injunctions all to no avail. What else but contempt can ensue so long as a judge can render any mandate he wills, and have that mandate law until the tediousness of long drawn out and expensive trials are had.

The person so nobly coming to the defense of courts to the effect that there are no oppressions of labor by such courts can hardly be accused of telepathy with Judge Adams of the Eastern District of Missouri.

Sioux City (Ia.) Union Advocate.

Once again, and in the boldest manner possible, the courts of our free and glorious country have been applied to for assistance and a writ of injunction invoked and an order made restraining the grand and subordinate officers and the members of the Brotherhood of Railway Trainmen from "ordering, coercing, advising or permitting any strike or demonstration on the part of the Brotherhood" that will in any manner interfere with the business of the Wabash Railroad.

A single reading of the writ as issued by Judge Adams of the United States District Court will convince any one that it is the broadest and most sweeping injunction that has ever been issued in any labor disturbance or industrial dispute. The rights, privileges and liabilities of both parties in strikes, lockouts and boycotts have been officially determined, but nowhere has any previous attempt been made to restrain men from quitting their positions.

The Brotherhood of Trainmen were taken at a disadvantage in that they were waiting for a reply to a proposition submitted by them to the railroad asking for an increase of wages, and while these negotiations were still pending, and without

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notice, the president of the railroad company sued out and obtained the order.

The United States Court decided long ago that men have the right to quit work. Some of the courts have held that they not only have a right to quit, but they have a right to peaceably persuade others to join with them, and they also have a right to establish pickets and by peaceable methods further their own interests by keeping the positions vacated by them unfilled. This injunction is the outcome of a long series of judicial wrongs. It is such orders as this that bring the administration of justice into contempt. The order is too broad. Judge Adams had no legal or moral right to anticipate that the Order of Railway Trainmen, as an organization, nor as individual members, were about or would attempt in the process of inaugurating and maintaining a strike commit any unlawful act.

The resort to the court by the president of the railroad company is in itself sufficient evidence to convince a fair mind that the railroad company had good reason to believe that an arbitration board or any settlement that might be made in any manner would be against them and in favor of the men. The mean advantage that was taken before negotiations had reached the acute stage and while the matter might have been settled without any trouble or expense to either side by the railroad company, is further evidence that they are not inclined to look with favor upon the requests of the men for an advance in wages. It is a safe prediction, unless Judge Adams dissolves the injunction upon application of the Brotherhood, that the case will be taken to the court above and there reversed. The effect of the order will be a temporary suspension of the strike, but some other effective method of producing the same results will be figured out by those who control the affairs of the Brotherhood.

There is further reason to believe that Judge Adams will not make the injunction permanent for the reason that no judge or court can restrain an American citizen from laying down his tools and proceeding to his home whenever he feels like it. * * *

The Wabash Railroad Company secured an injunction against its employes before a strike had been declared. And yet some people maintain and argue that trades unions should incorporate in order to have standing in court. Perhaps the thought of the capitalist is that if incorporated he could secure an injunction restraining unions from making demands for more pay.

Hinton (W. Va.) Independent-Herald.

Such an order is undoubtedly unconstitutional and is as vicious as anarchy. Doctors and lawyers have a right to form unions, all admit. The very essence of these unions is to raise prices. Merchants have a right to fix a scale of prices and any class of workingmen have a right to fix a price on their labor. You may say that viciousness and lawlessness and all that gets mixed up in those unions. We admit that. But if it were not for these unions men that are now paid $4.00 per day on the railroad here would be getting $1.10. And instead of the C. & O. R. R. dumping $40,000 per month in this town the pay-roll would be about one-fourth that amount. The more money you give the working people the better it is for the community. They are the people that spend money. These unions are right and they are for public good. A lot of clap trap may get into them, just as some people who wear the judicial ermine ought to be in the penitentiary. To say that labor has a right to organize but not to strike contains the following logic:

Oh, mother, may I go out to swim?
Yes, my darling daughter,
Hang your clothes across a limb,
But don't go near the water.

An organization according to some is all right if it don't mean anything.

St. Louis Labor Compendium.

The injunction issued by Judge Elmer B. Adams, of the Federal Court in St. Louis, against the employes of the Wabash Railroad, illustrates in its worst feature the curse of government by injunction. That part of it which enjoins the men from persuading their fellow-workmen from striking is plainly and absolutely extra judicial. Judge Adams might just just as well have enjoined the men from eating. A judge can not, by his mere ukase, change an innocent act into a crime. There is no law in the State of Missouri nor in any other of the United States, either judicial or statutory, which prohibits a man from striking or peaceably persuading other men to strike. The constitution of the United States guaranteeing to each citizen the right of freedom of speech interposes a shield between the Wabash Railway employes and Judge Adams, which even his tyrannical and extra judicial mandate can not beat down. The Supreme Court of Missouri unanimously decided in 1895, in the case of Saxey vs. Hamilton, Brown Shoe Co., that men had an absolute unqualified right to strike and to peaceably persuade others to strike. In so deciding the court only reaffirmed the principles of common law, common decency and common sense. * * *

Judge Adams' injunction is not only tyrannical; it is silly, and it breeds for the judiciary a contempt so widespread that it can not be reached by injunctions nor corrected by armed minions.

United Mine Workers' Journal.

The eight-hour law and the anti-injunction law were killed in the Senate committee. United States Senator Albert J. Beveridge, of Indiana, is the man responsible for their death. This man could be retired to private life next year if organized labor so willed, but what they will do in the matter is altogether a different question. There is no law so vital

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to the welfare of organized and unorganized labor as that anti-injunction law. As matters now stand there is not a lawful right of the people but what is subject to the whim and caprice of judges. To go further, there is not a right accorded to American citizens by the supreme law of the land but what has been denied them by injunction judges. Scores of men have been sent to jail for doing that which they have a clear and lawful right to do. Scores of men have been sent to jail for exercising the privileges accorded them and guaranteed them by the organic law of the land.

There could be no fault found with the Hoar bill. It merely reiterated the constitutional right of a trial by jury. Beveridge is the man responsible for the continuance of the monstrous conditions whereby a judge may nullify every human right. Just what his qualifications for a Senator are have not been discovered. He is a master of cheap cant about "the flag," "our fathers," a coiner of prolix periods and windy asserations; a mouther of somnolent gush and fantastical rhapsodies—in a word, he is a noisy, shallow, reservoir of meaningless bosh. He is a great admirer of John Chinaman. He visited China and filled the Saturday Evening Post with paens of praise for the "patient, tireless worker who cared nothing about who governed him so that he could find money to buy rice and opium." Beveridge put his love for the Chinaman to a practical test for he voted against the anti-Chinese immigration law. If the workingmen of Indiana were true to themselves they would permit Senator Beveridge to get his votes in the joss-houses and opium dens. He has proved himself totally unworthy of the votes of the American workingmen. He has turned a deaf ear to every measure in Congress which they desired to become laws. His face has been as stone to every petition they have sent to Congress.

Had the anti-injunction law passed Judge Adams could not have issued an edict to the Wabash employes, which at once strangled the most sacred rights of American citizens. Look at the pitiable grounds upon which this monstrous usurpation was based. The Wabash employes were not satisfied with their wages and conditions. In a courteous and respectful manner they asked for redress. This was refused. They then sent out a ballot asking each man whether he desired to continue at work and set a date to quit if dissatisfied. It was voted by an overwhelming majority to cease work if their pay was not increased. There was no coercion, no compulsion, every man voted his sentiments secretly. After holding out false hopes until he found a complaisant judge, President Ramsey sprung a surprise in the shape of the most sweeping abrogation of legal rights ever issued. He alleged conspiracy. President Ramsey owes this power to Senator Beveridge of Indiana. The railroad men, miners, organized labor of all trades, should join hands and drive Beveridge out of public life. It is idle to rave at effects—remove the cause.

Cleveland (O.) Artisan.

When a crusty and prejudiced judge issued an injunction against the United Mine Workers, last fall, forbidding them to feed their starving brothers under penalty of imprisonment, it was believed that infamous abuse of the injunction could go no further.

It has remained, however, for Judge Adams, of St. Louis, to outdo even that notorious "Don't Feed the Hungry" injunction by restraining employes of the Wabash Railroad from declaring a contemplated strike.

This is one of the most sweeping and iniquitous perversions of justice on record, and its importance is such that it can not be passed over without comment. * * *

The startling and sweeping nature of this injunction left the unions no alternative but to obey its requirements, and in view of the fact that no strike can be called by the brotherhoods without the sanction of the grand officials, there was a grim sort of humor in President Ramsey's remark as he left his office for home that night:

"No," he smilingly replied in answer to a question, "no, I don't believe a strike will be brought about!"

The attitude of the Wabash officials is rendered more intolerable by the fact that greater remuneration has been granted by practically every railroad in the country to employes this year, and that where an amicable settlement could not at first be arrived at, both parties have been willing to submit the point at dispute to arbitration, with the result that perfect harmony and co-operation has been established in every case. * * *

When a great railroad positively declines to treat with its employes, disdains and insults their organization, and resolutely refuses to submit the question at issue to impartial arbitration, it is high time, in our opinion, for government intervention in the interests of public right, safety and convenience.

"I do not anticipate any trouble in securing men to operate the road if a strike should be declared," said President Ramsey.

This means that the exact, painstaking and skilled labor necessary to the conduct of a great railroad would be entrusted to a mob of "green," unexperienced and unreliable men gathered from the very scum of the great cities. The lives of thousands of passengers would be at the mercy of drunken, unprincipled "strike-breakers"—or scabs, to be more plain—and millions of dollars worth of merchandise would be endangered. If the possibility of such a state of affairs doesn't merit government interference, what on earth would merit it?

Riots and bloodshed, instigated by employers in order to influence public sympathy against the strikers, wilful destroyal of life and property by gangs of cut-throat thugs and scabs—these merit (and always receive) federal interference, but it is the interference of armed militia, arrayed against the men who are,

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ISLAND OF GUAM

Typical street scenes in Agana

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as a rule, peaceably contending for a principle and the right to earn a living wage!

Which is preferable? Peaceful intervention to prevent a strike by lawful means, or armed interference to end a strike by legalized murder and bloodshed? Let the opponents of compulsory arbitration answer that!

The injunction is the most damnable, undemocratic and anti-American institution with which the people have to contend today, and if this iniquitous command of Judge Adams be made permanent—if it be not defeated and condemned by the sheer force of public opinion—we may as well discontinue that cheerful fiction about "The Land of the Free and the Home of the Brave."

Indianapolis Union.

The recent decision of Federal Judge Adams, of St. Louis, in response to the application by President Ramsey, of the Wabash, asking for a restraining order prohibiting the employes in the transportation department from going upon a strike, has brought out a mountain of intellectual food for thought and reflection.

The most unusual display of corporation friendship ever exhibited by a Federal Judge is displayed on this occasion.

The decisions of Judges Jackson, Woods, Baker, Taft, Keller and others of their kind pale into a faint mist compared with the cyclonic decision of the St. Louis jurist. A faint wind or snowstorm will sometimes drive men to cover. Occasions sometimes warrant a stronger incentive.

The provocation in this instance and the justification were such that nothing short of a cyclone was equal to the emergency, and a cyclone was therefore provided.

An application duly presented to President Ramsey, asking for a moderate increase in the wage schedule was respectfully worded and indicated no hostile inclination on the part of the employes. It was met with an insult. The representative of the employes was ignored. The tyranny of the company was above considering the employes. By due process the employes by a referendum vote decided to strike upless the request for an adjustment of wages was complied with. When the ratification was made known President Ramsey asked to be given four hours' more time in which to give a reply. After appealing to the men for leniency and obtaining the extension of time, he utilizes it by obtaining an injunction from the court restraining the employes from striking.

This high-handed procedure is criticised by the corporation dailies of the country as an outrage, declaring it to be worse than the injunctions of England where men were deprived from quitting work. Peter M. Arthur declares it to be the most sweeping injunction ever issued and one that can not stand in a civilized country.

It is beyond question the boldest document ever issued and will connect the name of Adams and the Czar of Siberia together for all time to come.

Galesburg (Ill.) Labor News.

A St. Louis judge has issued an injunction restraining the Brotherhood of Trainmen and Locomotive Firemen from striking after having their demand for an increase of wages turned down. Thank heaven, it has now come about that incorporated wealth is now laying the last straw upon Labor so that the whole burden being thrown aside or into the ditch is only a matter of a short time. The St. Louis judge really did the wage workers a kindness for his action will but serve to unite them more firmly than ever in their efforts to secure justice. When they are united and they then declare for the rights of men over incorporated greed—then wage slavery will be abolished for all time.

St. Paul (Minn.) Union Advocate.

It is not at all improbable that the evil of government by injunction has reached the very summit of its dangerous possibilities. The action of a federal judge down in St. Louis in enjoining the employes of the Wabash road from carrying out their avowed purpose of engaging in a strike certainly indicates that the very apex of judicial recklessness has been attained in this direction.

Thomas Jefferson never showed with greater clearness his profound understanding of the precautions necessary for the maintenance of free republican, democratic institutions than when he fought with all the power at his command against the creation of a federal judiciary appointed for life. But he made his fight in vain. His warnings are among the political records of the Republic; and events are proving day by day with added force that these warnings hardly stopped short of prophecies.

At this time the monstrous nature of the action of Judge Adams almost defies comment.

The representatives of the cause at which the foul blow is aimed must not be misled at this time into thoughtless denunciation. There has been great pains taken in one quarter or other to keep the enlightened public from any thorough comprehension of the meaning or even the scope of this strange exercise of the remedy of injunction. It will not be long to wait before it is thoroughly comprehended in all its bearings. It has been resorted to on the eve of the dissolution of Congress, and for relief from its evil consequences the country must now depend entirely on the action of the federal judiciary, itself, which has never missed an opportunity to show its servitude to the cause of organized capital. * * *

We can wait. Those of our people who have spoken in connection with this act of judicial scoundrelism have spoken well, and we believe not in vain. The act of Judge Adams may prove a great blessing

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for American society. It will surely be a blessing in the disguise of an apparent death-blow. For if it is once established, through judicial or other official decree, that the liberty of conduct of American citizens along the lines of their undisputed personal rights can be nullified nothing short of the forces of revolution may have to be appealed to in order to set our institutions back on the constitutional foundations on which they were reared by the fathers of American liberty.

It is best to let this daring assault on individual and collective rights go at this time without further comment. The sequel will soon prove what it may be necessary for American citizenship to do in order to properly meet this gross assumption of political supremacy by the judicial arm of the general government.

Terre Haute (Ind.) Toiler.

Another corporation henchman has been found on the bench. This time it is Judge Elmer B. Adams, of the United States District Court at St. Louis. There is nothing startling in this discovery. All that any of them need to show their interest in the capitalistic class, their masters, is the opportunity. Judge Adams' opportunity came this week. For several month the employes of the Wabash Railroad have been trying to secure some concessions from the management. Their efforts have been futile and a strike was imminent. The management went before the U. S. judge with its little injunction nicely typewritten, and the judge immediately affixed his signature, as a dutiful servant should. The injunction prevents the officers of the labor organizations from ordering a strike and the members of the organizations from striking. Of course this means that the workers are slaves, but why be surprised? Some of us have realized that we were slaves for a long time. We have also realized that as long as the political powers were in the hands of tools of the capitalist class, there was no hope for us. So long as the government is controlled by the capitalist class, the judges will be but the servants of that class, and will obey their masters. When the working class conquers the political powers and becomes the governing class, then can we expect justice, and not before.

Los Angeles (Cal.) Labor News.

A precedent that is awful in its significance to every lover of liberty is that established by the St. Louis judge who recently issued at the instance of the Wabash Railroad an injunction prohibiting railroad men from going on strike. Former injunctions have been sufficiently un-American to create fear that government in this country is rapidly being concentrated in the courts, but this one goes so far as not only to leave no doubt of that fact but to establish the still more disturbing one that the courts are in many instances the tools of the corporations. Judge Adams' act is nothing short of despotism of the most dangerous kind. The famous Judge Tuley, of Chicago, expresses a sentiment in speaking of his contemporary's action that will find echo in the hearts of the millions whose liberties have been infringed upon by this one act. He says: "We will reap the whirlwind some day from the seeds so sown."

The danger has been frequently pointed out in the past by the labor unions who have so far been the greatest sufferers. But the indifference of the whole people will yet be overcome by such actions, and the courts will some day face the wrath of an outraged liberty-loving American populace.

Cleveland Citizen.

With Judge Tuley we also believe the day will come in the not distant future when the "working classes" will have political control and take their turn at hurling injunctions.

Our only regret is that the day doesn't come fast enough.

But when we reflect that every administrative and legislative outrage heaped upon labor brings that day nearer, and that such outrages are now coming thick and fast, we become highly optimistic, and, as organized workers, although smarting under the blows and insults given, we can cry in defiance: "Lay on, Macduff; and damned be he who cries, hold, enough!"

Speaking of injunctions, many loose thinkers make the careless assertion that these court decrees are unconstitutional. Such is not the case, however. That an injunction is a weapon of oppression when aimed at labor organizations is undoubtedly correct, but it is a legal weapon, nevertheless, based upon the fundamental law of the land—that is, it is means to defend the individualistic right to private ownership of land and capital.

* * *

So all the denunciations of judges, from Ricks to Adams, have been next to useless. The promise of politicians that they would "pass laws" to stop injunctions were pure demagogy and were made to catch votes. The editorial yelps in the sensational yellow press were emitted to sell papers.

The politicians know little and care less about fundamentals—what they are after is place and pelf, and their course in Congress and in State Legislatures when anti-injunction and other labor bills were introduced, prove that they are true to their capitalistic masters and could not and would not take the first step to undermine the system of private ownership.

It is the system, therefore, that must be dealt with. To defeat an injunction-throwing judge at the polls and put another of the same class in his place, with the organic law remaining the same, is worse than child's play—about as sensible as discharging a policeman for enforcing the law.

Looking at this matter from any standpoint, it narrows down to the question of political action—it narrows down to voting for a party that upholds private own-

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ership, and consequently injunctions, or voting for a party that stands for collective ownership of the means of production, which would change the system that breeds and fosters the injunction and other evils of which labor complains.

* * *

The railway trainmen handed President Ramsey, of the Wabash, an ultimatum demanding higher wages or a strike would follow. Not to be outdone in gallantry, Ramsey pulled the strings and handed the railroaders an injunction compelling them to remain at work. Who said there is a class struggle?

New York Worker.

And now it is the railway men's turn.

Eleven hundred employes of the Wabash wanted an advance of wages to partly compensate for the increased cost of living and the enormous increase in the amount of work they are required to do in these days of prosperity.

The Wabash has joined with other roads in advancing freight rates. But advancing wages is quite another question. President Ramsey decided to resist the employes' demand.

President Ramsey knows his business. He did not frankly refuse the demand. He asked the employes' committee for time to consider the question. They granted him time.

Within three hours, President Ramsey had applied for an injunction and got it.

President Ramsey is a pillar of respectable society and one of the trustees of our national prosperity. So is Judge Adams of the United States Circuit Court at St. Louis.

Judge Adams granted the injunction without hesitation. The order was already prepared by the Wabash attorneys. Judge Adams signed it off-hand, and court officers rushed away to serve copies on all the officials of the various railway brotherhoods.

What's the constitution or law or decency or common sense—between such good friends as a railway president and a federal judge?

Judge Adams granted the injunction without hesitation.

Immediately after Judge Adams had signed the writ, President Ramsey sent a long letter which he had already prepared flatly refusing the employes' demands.

This injunction is the most sweeping and the frankest that has ever been issued. Judge Adams does not confine himself to prohibiting the use of violence or of threats or of abusive language. He goes straight to the heart of the matter.

He addresses it to "you and each and every one of you, individually and as representatives of the Order or Brotherhood of Railway Trainmen and Brotherhood of Locomotive Firemen, your, and said organizations' representatives, clerks, agents, and attorneys, and all others who may be aiding and abetting you or them, or acting in concert with you or them and under your or their direction."

He "strictly commands" all the men included in this verbose address "absolutely to desist and refrain from in any way or manner, ordering, coercing, persuading, inducing, or otherwise causing, directly or indirectly, the employes of the said, the Wabash Railway Company, engaged in or about the operation of its trains within the United States, and brakemen, switchmen, or locomotive firemen to strike or quit the service of the said company," or to do any one of a large number of other perfectly lawful and peaceable acts involved in and connected with the carrying on of a strike.

Never before has a judge openly and directly forbidden men to strike. This is the limit.

The officers of the Brotherhoods are reported as saying they will obey the injunction so long as it stands and desist from calling the strike their unions have instructed them to call. They say they "are legally enmeshed, and must accept without protest, under penalty of imprisonment, the working conditions which he chooses to impose."

There are worse things than going to prison. Eugene V. Debs went to prison in 1894. A worse thing than going to prison is tamely submitting to the assassination of public liberty.

We have to see whether Judge Adams' order will stand and whether the railway men will bow to it. Meanwhile, the government is shooting miners in West Virginia.

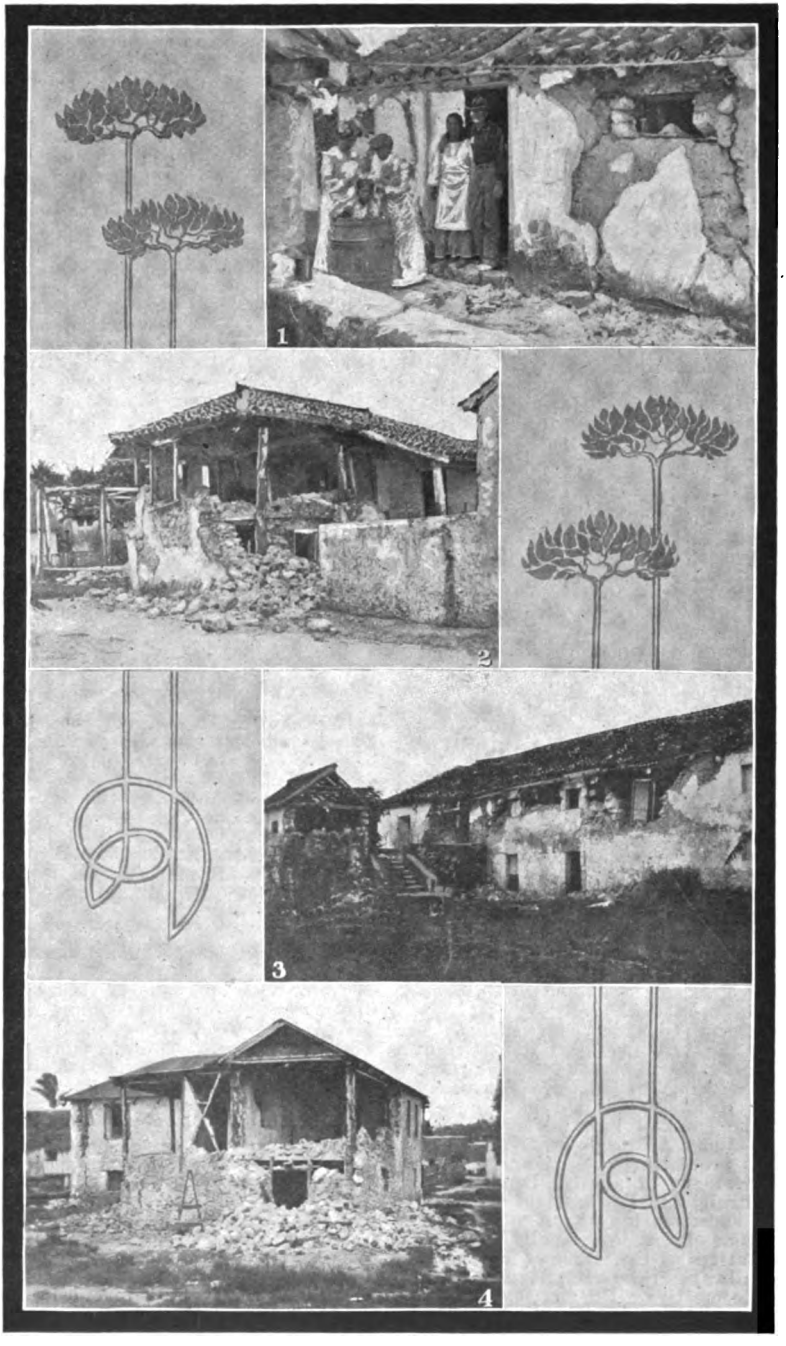
Milwaukee Social Democratic Herald.

The unbrotherly railway brotherhoods, who have prided themselves on being capitalistic pets even to the point of giving political capital to the President when he wants to fool the workers out of their votes next campaign, ran up against real capitalism in the Wabash case. Perhaps a taste of government by injunction will awaken them from their bad leadership—no, not bad leadership, dishonest leadership, is the word.

Anaconda (Mont.) Labor-Socialist.

Injunctions of a number almost beyond the power of man to compute have in time past been issued by courts throughout the country, restraining strikers from performing certains acts of violence. Not always were the things enjoined of a violent character, but merely, by being enjoined, assisted in strengthening the hands of the capitalist. Hardly without exception the judges of the bench of the country have conceded to every application for an injunction directed against the laboring men without any apparent hesitation and with no regard as to whether or not an injunction could lie in the premises. In a vast majority of cases it is safe to say that no injunction could lie in good law, but the ever-ready subserviency of the judiciary to comply with the demands of the capitalistic classes has easily swept away this consideration and the injunction has issued notwithstanding.

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ISLAND OF GUAM

Houses damaged by recent earthquake in the town of Agana

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In the injunction proceedings brought before Judge Adams, however, an almost wholly new reason is brought forward as to why an injunction should issue. "The men are going to quit work in a body; your 'honorable' court is asked to say to the workingmen that they can not quit and if they do quit they are in contempt of this court and subject to punishment." And the "honorable" court granted it.

Though flagrantly in violation of all law, of all ethics, of all sense of fair play, the "laboring man bowed in submission to the law."

Let all men who have found pleasure in saying that when a man wants to quit work let him quit, let all men who have found pleasure in saying that the ways of laboring men is by force and "a la lantern;" the way of the furious mob; let all men observe that the laboring men bowed their heads in submission to the law. Let them further take notice that it was the capitalist that appealed to the sacred institution which is popularly supposed to sit in blind justice in deciding the rights of all men and asked the court for something that the statute books never have said could be done; and let them notice that the judge, unquestionably prostituted to the very interests that appealed to him, "granted the injunction." The men were asked for more time and they granted it; they submitted to the law. The capitalist was appealed to for a concession and he refused it; deceitfully asked for more time to consider the demand in order that his purchased jurat might have an opportunity to draw up the necessary document. And let all men observe that when the laboring man comes before the people and asks that laws be enacted which shall make impossible "government by injunction," they are called anarchists and nihilists and are told that they are attacking the most sacred institution of our nation. And let the laboring man observe that the arbitrary action of Judge Adams in St. Louis a few days ago will become the universal action of the entire bench if the laboring man continues to vest the power of the political machinery of the government in the hands of either of the old parties.

Let all men take notice that the laboring men "in bowing in submission to what is not law," are really observing the peaceful and orderly course, but that they are only biding their time when the power shall come into their hands through the movement of unionism and socialism. Capital will raise its voice in protest with tears in its eyes, but it will find that the time when consideration for it over the rights of all the people has passed. It is such acts as Judge Adams' that hastens the day of perfected unionism and accomplished socialism.

Laporte City (Ia.) Railway News.

Free sons of the great and only country on earth, where do you find yourselves this morning, March 3, 1903? The immortal Judge Adams issued his proclamation yesterday. In the old slavery days, all the owner had to do was to tell the slave to go to work or to quit work. The only difference so far as the penalty for disobedience is concerned, is that in the old days the disobedient slave was whipped, and now the punishment is the jail. As to which is the worst is a question. Men are not made up alike. Some would prefer the "lickin" and some would prefer the jail. There isn't much difference.

There is another feature to the conditions though that is in favor of the old slave, and that is that the owner was careful that nothing was done to injure the slave physically, for that would hit him in the pocket, that would be doing himself an injury, so they looked out for that; but the relation of the master and slave now is different. The corporations can't sell the bodies of these slaves, so it is a matter of no concern to them as to whether these latter day slaves starve to death or not. What difference can it make to them? There are plenty more able-bodied slaves waiting for a job, statements of the great capitalistic newspapers to the contrary notwithstanding. They have claimed for the last six years that there was not a single idle man in the country who would work if he had a chance; at the same time they were making a big howl about the lawlessness of the strikers in interfering with men who wanted to take their places. It has made no difference how many men have gone out on a strike in a bunch, whether it is ten or ten thousand; or as was the case in the great coal strike where it was a hundred and fifty thousand, they claimed there were plenty of men to do the work if the strikers would not interfere; and they had lawyers and nonunion witnesses before the commission to prove it.

So it makes no difference to the modern slave-driver who does the work, all they want is to have it done, and to take the "Rake Off."

In the published interviews with labor leaders in Chicago, Judge Adams is unmercifully scored. They say he should be hung, that all kinds of horrible things ought to happen to him. Why? Did not these same labor leaders vote for this very thing? * * *

The interstate commerce law that was made to protect the people against the railroads, has been reversed and used against the people and in the interest of the railroads. How weak and impotent this interstate commerce law has been when used against the railroads. Is there a case on record where they have been touched? There was a case against the Central Traffic Association carried to the Supreme Court of the United States, and it must have been by some mistake decided against the association; but what did that amount to? They never closed their offices for one minute. They simply scratched the name off the glass doors and windows, and went right along as though nothing had happened. Chauncey Depew, a United States Senator, was president of the association. Every man in the employ of the association put in

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full time and drew full pay. So far as the interests of the public is concerned, the interstate commerce law has been a dead letter from the start. It was ridiculed—literally spit upon by the railroads and the big corporations that fattened off rebates in violation of the law. It is remembered that a congressional committee met in Chicago several years ago to make an investigation regarding the violation of this law, and that the great millionaire packer, P. D. Armour, ignored an invitation to appear before the committee to give some information. He paid no more attention to it than he would have done to a request from a committee of Chinamen in Hongkong. Every railroad in the country openly showed their contempt for the law. They have cut rates, weights, paid rebates, and transacted their entire business utterly regardless of any law; the interstate in particular. The labor unions have rubbed up against them a little, but that didn't hurt them; whenever they have raised the wages, they have immediately raised their tariffs, so the very men who got the raise had to help to pay the raise themselves. Allowing the labor unions all the credit they claim for the improvement of the condition of the laboring man, is it not easy to see that they are almost helpless when it comes to a "bona fide" improvement, and not something that just appears to be an improvement or anything permanent? All the contracts made between the labor unions and their employers are for a limited time. It is nothing but a perpetual fight. After the contract expires there is more trouble, and sometimes it comes before that time. What does all the talk about a raise in wages amount to? If a man is getting fifty dollars a month ,and his employer raises it to a hundred, and raises the price of the commodities he sells to the man a hundred per cent., how is his wages raised? That is exactly what has been done, excepting it has been worse than that; they raised the prices long before they raised the wages and the consequence is that a whole lot of laboring people got into debt, and as there was no real raise they will never get out. It is to be hoped that these Wabash Railroad men who have been served with an injunction to almost prevent them taking a full breath of air will wake up and try to find out what the matter is. It seems as though that along down the ages it would dawn upon them that they have been voting for what they are getting, and the Lord only knows how much more; for the corporation judges are springing new things on them all the time. They have voted for these same judges, and voted for the same things the judges voted for. They have voted right along side of the judge. Isn't it their own fault? This government by injunction business was started eight years ago. They know it is a violation of the law; but what have the labor unions done about it? Not very much, for here is a fresh one and the worst of the lot; they get worse as the system grows old. How do the labor unions get legislation? Don't they have to waste time and money, and then get next to nothing? Is it possible that the rank and file of the labor unions will never see these things? Of course there may be an object in the officers shutting their eys to these things, but don't it appear that just an ordinarily intelligent workingman would tumble some time? Why do they bar politics from the unions? We believe the objection always comes from some officer. They talk the common members out of the idea of helping themselves by the only means that will bring real, permanent benefit. Did not Gompers do it at New Orleans? It is dollars to doughnuts though that he will not be able to do the same thing at the next convention. We don't know much about the socialist doctrine, but we believe that if the socialists had been in power eight years, this Judge Adams injunction would never have been heard of. How long will the laboring people of this country allow a lot of disreputable pot house politicians to drag them about and get them to talk and vote against their own interests? Have they got ossification of the upper story? They surely know now that the old parties won't do them any good. Why is it then that they will not look about a little and try to see if there is not a possibility that there is something better? They certainly could not lose much for they haven't much to lose. It won't hurt any to get hold of a little socialistic literature, and do a little thinking on your own hook. Don't be afraid. It won't hurt you. Try it.

Omaha (Neb.) Western Laborer.

If the St. Louis railroad men can be "Buffaloed" by Judge Adams' injunction there isn't much fight in them. Edward Rosewater says that men who are not willing to fight for their rights don't have any rights. It is the survival of the "fitters," not of the "quitters."

Nashville (Tenn.) Labor Advocate.

The most serious phase of this matter for trades unionists is, however, the utter indifference with which the public have received the news of this last exhibition of government by injunction. The only inference from that fact is, that the people have finally acquiesced in the usurpation of power by the federal judiciary, and that a new form of tyranny has been established in this country which is wholly inconsistent with, and subversive of, popular liberty. No anti-injunction bill was passed by the last Congress, and none will be passed at the next session, except upon the happening of one contingency.

The Republican platform in 1904 will have nothing to say about "government by injunction." The Republican party is a great believer in efficiency and success, and the injunction has proved both efficient and successful. Moreover, that party is exceedingly fond of those great corporations, the business interests, which furnish the sinews of war upon contingent privileges in legislation and governmental administration.

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The Democratic platform will doubtless reiterate the denunciation of "government by injunction," which was contained in the platforms of 1896 and 1900. It did not in those years prove very successful as a vote catcher in the great industrial States, where workingmen are so largely in the majority; but it will cost nothing to insert the plank again in the platform of 1904. But, in any event, "government by injunction" will not be the "paramount issue" on the Democratic side.

The only thing that will bring about a change of attitude toward workingmen is an ever-increasing vote by the toilers for a platform and candidates that represent their own interests and aspirations. The laborers are numerically nine to one. In point of influence on legislation and government they are about as one to one hundred. What is the explanation of the phenomenon? Think about this just a little. It is well worth while.

Memphis* (*Tenn.*) *United Labor Journal.

Another injunction has been granted, restraining the officials of a certain union from ordering a strike. But the organized labor movement do move, and one of these days the workingmen of this country will issue a restraining order that will relegate to the shades of political oblivion every mother's son of those tyrannical judges.

Virden* (*Ill.*) *Industrial Independent.

The climax has been reached. When a judge can with one stroke of his pen brush away the last of our liberties, our land is a republic only in name. But such is the ripe fruit of government by injunction. * * *

What a commentary is this on all our boasting as freemen. Let us hope that this injunction will inspire the people to untiring effort until they have put an end to court-made law. Unless this is done our much-vaunted freedom is a thing of the past.

Des Moines* (*Ia.*) *Unionist.

Many members of trades unions view the writ of injunction issued by Judge Adams in the Wabash case from a pessimistic viewpoint. Judging from the past there is no more hopeful sign of the times for the laboring man than that writ so recently issued. The writ of injunction is an instrument or prerogative in the hands of a Federal judge, so deep and mysterious that no man has ever delved to the bottom. Every judge to whom application is made for injunction assumes the prerogative of interpreting it according to his own inclinations, prejudices and training, and makes it law until a trial can be had upon the facts. Until a trial can be had this writ or prerogative of the judge is as absolute as any prerogative ever issued by the most absolute monarch, and this regardless of whether it is afterwards sustained or not. Man must not only obey its mandates, but must avoid criticism of it. This is plainly a usurpation of the rights, privileges and the civil liberty of the common people. * * * The very fact of the continual enlargement by judges upon their right of prerogative to issue and construe conspiracy laws will sometime so enrage civil liberty loving people that their representatives will be driven from their servility, cringing and fawning upon the man of wealth. As President Parry of the Manufacturers' Association says in speaking of the defeat of the injunction measure, "the trades unions demanded and threatened, we merely requested." Let the Jacksons, the Kellars, Jenkins', and last and best, the Adams' continue to enlarge upon their prerogative and the common people will arise to Mr. Parry's most polite ideal of request and it will be so emphatic that legislators will not further misconstrue its meaning. There is no quicker way to arouse an intelligent people to action than by continually and unsparingly withdrawing from them rights and privileges to which they consider themselves fully entitled.

Deadwood* (*S. D.*) *Pioneer-Times.

It is hard to find justification for the course of President Ramsey, of the Wabash Railroad, in asking for an injunction from a Federal court to keep his employes from striking.

No violence has been committed or was threatened. Committees of the trainmen's and firemen's unions had presented Mr. Ramsey certain demands in behalf of his men. He had asked time to consider them, and he used this time to get from the United States Circuit Court, represented by Judge Adams, a restraining order against all the officials of all the orders and the members of the grievance committee.

This order strictly commands all the persons on whom it is served, until the further order of the court, "absolutely to desist and refrain from in any way or manner ordering, coercing, persuading, inducing or otherwise causing, directly or indirectly, the employes of the said Wabash Railroad Company to strike or quit the service of the company."

The Daily News believes in the right of combination equally for capital and labor. It believes in the right of men to work, when they please, without fear of interference or violence. But it also believes in the right of men to refuse to work when the conditions of their employment are distasteful to them. It holds all these rights to be equally sacred and their maintenance essential to free institutions.

It seems to us that labor organizations are justified in feeling that to resort to an injunction to keep them from striking, when they are neither creating nor threatening a disturbance, is taking an unfair advantage of them.

In the Wabash case, the men deserve credit for prompt obedience to the order

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of the court; but it would be a deplorable thing if such resort to an injunction were to become a precedent.

East Liverpool (O.) Potters' Herald.

As time progresses the abuse of the injunction is becoming greater, and, consequently, the rights of the workingmen are less secure. As an instance of this, we call attention to the injunction issued by Judge Adams, of St. Louis, Mo., in which he goes so far as to restrain the officers of the firemen's and trainmen's organization from ordering a strike. One would hardly think it possible that a judge would issue an order so extremely despotic and unjust. * * * Labor leaders have very often, in the past, urged workingmen to endeavor to wipe out this evil of government by injunction before it came to that stage where they would be denied even the right to strike. When labor leaders put forth such arguments they were ridiculed by the public press and were not taken seriously even by the workingmen themselves; but this latest injunction is indisputable evidence that that the attempt is at last being made to deprive workingmen of the right to strike.

Who can measure the extent of the evil that will result if this injunction is allowed to stand? Will workingmen be freer than the negro was in slavery days, when they are not allowed to cease work as a protest against what they consider unjust conditions?

This injunction is so despotic, so un-American and so dangerous in its tendency that it has even brought forth a protest from the judicial bench. Judge Tuley, of Chicago, commenting upon it, said: * * *

Judge Tuley may well say that "It is time to call a halt." But how long will it be before the workingmen, with their ballots, will call a halt to such things? This is one of the evils that must be remedied by the ballot, and the workingmen have the power to do it if they would only use it properly. There is no weapon, which arbitrary employers wield, that workingmen need to fear so much as government by injunction, and we can not understand why workingmen are so indifferent toward it.

* * *

The Safety Appliance Bill.

Perhaps as a resentment of Congress, because of the manner in which federal judges have been undoing its legislative work, the amendment of the safety appliance act, introduced by the request of railway labor organizations, was passed by both the Senate and House, and was signed by the President. The purpose of this amendment was to repair the damage done to the original act by federal judges, and its text is as follows:

AN ACT to amend an act entitled "An act to promote the safety of employes and travelers upon railroads by compelling common carriers engaged in interstate commerce to equip their cars with automatic couplers and continuous brakes and their locomotives with driving-wheel brakes, and for other purposes," approved March second, eighteen hundred and ninety-three, and amended April first, eighteen hundred and ninety-six.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the provisions and requirements of the act entitled "An act to promote the safety of employes and travelers upon railroads by compelling common carriers engaged in interstate commerce to equip their cars with automatic couplers and continuous brakes and their locomotives with driving-wheel brakes, and for other purposes," approved March second, eighteen hundred and ninety-three, and amended April first, eighteen hundred and ninety-six, shall be held to apply to common carriers by railroads in the Territories and the District of Columbia; and shall apply in all cases, whether or not the couplers brought together are of the same make or type; and the provisions and requirements hereof and of said acts relating to automatic couplers, grab irons, and the height of drawbars shall be held to apply to all trains, locomotives, tenders, cars, and similar vehicles used on any railroad engaged in interstate commerce, and in the Territories and the District of Columbia, and to all other locomotives, tenders, cars, and similar vehicles used in connection therewith, excepting those trains, cars, and locomotives exempted by the provisions of section six of said act of March second, eighteen hundred and ninety-three, as amended by the act of April first, eighteen hundred and ninety-six, or which are used upon street railways.

Sec. 2. That whenever, as provided in said act, any train is operated with power or train brakes, not less than fifty per centum of the cars in such train shall have their brakes used and operated by the engineer of the locomotive drawing such train; and all power-braked cars in such train which are associated together with said fifty per centum shall have their brakes so used and operated, and, to more fully carry into effect the objects of said act, the Interstate Commerce Commission may, from time to time, after full hearing, increase the minimum percentage of cars in any train required to be operated with power or train brakes which must have their brakes used and operated as aforesaid; and failure to comply with any such requirement of the said Interstate Commerce Commission shall be subject to the like penalty as failure to comply with any requirement of this section.

Sec. 3. That the provisions of this act shall not take effect until September first, nineteen hundred and three. Nothing in this act shall be held or construed to relieve any common carrier, the Interstate

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Commerce Commission, or any United State District Attorney from any of the provisions, powers, duties, liabilities, or requirements of said act of March second, eighteen hundred and ninety-three, as amended by the act of April first, eighteen hundred and ninety-six; and of all the provisions, powers, duties, requirements and liabilities of said act of March second, eighteen hundred and ninety-three, as amended by the act of April first, eighteen hundred and ninety-six, shall, except as specifically amended by this act, apply to this act.

The Child Labor Conflict at the South.

One more Southern State seems to have responded to the appeal for legislation restricting the employment of children in factories. In Virginia the House of Delegates has passed an act prohibiting factory labor for children under twelve, and regulating the labor of those between twelve and fourteen. The Senate is likely to concur, and the influence of Virginia be put on the side of those who have so long been struggling for a similar law in Alabama and hope to see the fruits of their labors when their legislature meets next month. Unfortunately, however, another Southern State nearer than Virginia has kept its influence on the wrong side—the Georgia Legislature having adjourned for four years without enacting the moderate child labor law demanded. As Alabama also now has a Constitution providing for legislative sessions only once in four years, the corporate influences opposed to restriction are likely to take courage from their success in Georgia and fight desperately in Alabama also against any restrictive measure, knowing that the defeat of the reform this year gives them four years more of license, and puts upon the reformers the necessity of keeping up an agitation during a long period when public attention is hard to arouse because no legislative action is possible. This obvious effect of infrequent sessions of the Legislature ought to be considered in the Northern States which are considering the proposed abandonment of annual sessions. Fortunately, we have no reason to fear that the Alabama reformers will abandon their agitation even if they are defeated this year. A recent letter from one of them says:

"I have just returned from a mill where the employes, children and all, are worked for thirteen hours a day—from 5:30 in the morning to 6:30 at night, with but twenty minutes for dinner. The same mill, when it is rushed, works its hands from three to four nights in succession until 9:30 and sometimes 10 o'clock."

Such exploitation as this of the physical strength of half-grown children, such deprivation of the pleasures of childhood and of the mental equipment needed for maturer years, are sure to touch the hearts of all who have no pecuniary interests in maintaining the false system, and the supporters of the reform know that they have only to continue their work to succeed. Our correspondent believes that the cause will also appeal to the consciences of those who are financially interested in maintaining the present system, and asks us, so far as we are able, to appeal to the New England stockholders in Southern mills to use their influence with their corporations on the side of humanity. "If," he writes, "the Northern men who are involved in these Southern enterprises will get squarely and explicitly on the side of legislation, every State in the South can have a child-labor law before the first of March."—The Outlook.

Court Decisions

No Chimney for Headlight.

WHERE a railroad company permits an engine to start out on a trip without any chimney for its headlight, in consequence of which the headlight can not be used, and a collision results, in which the conductor of another train is killed, the negligence is that of the company itself, and not that of a fellow servant. Sutter vs. New York Central & H. R. R. Co., 79 N. Y. Supp. 1106.

Assumption of Risk.

The doctrine of "assumption of risk" rests for its support upon an agreement of the employe with his employer, express or implied from the circumstances of his employment, that his employer shall not be liable to him in damages for any injury incident to the service he is employed to perform, resulting from a known or obvious danger arising in the performance of the service. The word "risk," in this

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connection, includes more than a knowledge of conditions, it also includes a knowledge, or opportunity for knowledge, of the peril to the employe arising from conditions. Hence, before it may be held, as a matter of law, that an employe has, by virtue of his contract of employment, assumed responsibility for a risk to which he has been subjected in the use of defective appliances or instrumentalities furnished him for use by his employer, not only the defect itself must be known to him to exist, or be of such nature as should have been known by him, but the peril to himself arising from the use of the appliances or instrumentalities in their defective condition must be also either known to him, or of such nature as he should have known in the exercise of that reasonable and ordinary observation required of him for his safety. Atchison, T. & S. F. Ry. Co. vs. Bancord, 71 Pac. Rep. (Kan.) 253.

Engine Couplers.

The Iowa Code, Secs. 2079, 2080, provide that railway companies shall not, under certain conditions, put in use any "car" not equipped with automatic couplers. Section 2081 provides against the use of any locomotive without a certain kind of brake; and Section 2082 requires that every train shall have enough cars equipped with power brakes to render the train controllable thereby. Section 2083 provides that an employe, by remaining in the employ of a company violating the preceding sections shall not thereby waive his rights to recover damages. Section 5 of the act as originally passed (Acts 23d Gen. Assem., c. 18) required railroads to make a report of the number of engines and cars, and what number was equipped with power brakes and what number of "cars" with safety couplers. *Held*, that, considering the act as a whole, it did not require engines to be equipped with automatic couplers, and, where plaintiff was injured by the negligence of the company in using an old-style coupler on an engine, Section 2083 would not relieve him from the doctrine of assumption of risk. Bryce vs. Burlington, C. R. & N. Ry. Co., 93 N. W. Rep. (Iowa) 275.

Tickling Employe.

Cunningham, superintendent of one of the shops of the Western Railway of Alabama, when telling Jim Milligan an employe to brush off the table of a machine on which there were revolving knives, was charged by Milligan with having negligently struck or punched him in the side, as a result of which he threw his hand forward and had it cut off. Milligan sued the company for $20,000 damages and was awarded $1,200, which has just been reversed by the Supreme Court of Alabama. The court in its opinion says:

"The theory upon which this case was tried, and upon which there were verdict and judgment for the plaintiff, Milligan, was that the railway company is responsible for the act of Cunningham, its alleged superintendent, in playfully punching or pushing Milligan in the side with a small stick when he told the latter to brush off the table of the machine, which was constituted in part of knives set in its center, and at the time rapidly revolving; that Milligan was 'goosey,' as he expressed it, or ticklish; and that the light punch or push in his diaphragm so upset him as to cause him to throw his hand among the knives, by which it was cut off. We are not of opinion that this act of Cunningham, assuming that he had superintendence intrusted to him in respect of having Milligan to brush off the table and that the act was done while he was in the exercise of such superintendence, was an act of superintendence for the consequences of which, under the employer's liability act, the company is liable. There is no pretense that the act was intended or calculated to further the work Cunningham had directed Milligan to do. It bore no sort of relation to that work, but was a mere casual pleasantry, or act of fun-making, on the part of Cunningham towards Milligan, as one man would tickle another to make him jump or laugh spasmodically. It is testified that Cunningham knew that Milligan was 'goosey,' or ticklish—given to ridiculous gyrations when he was pushed or punched or touched—and the men there in the shops were in the habit more or less of touching or pushing him to see him jump. It was for this, and not in connection with the work he was directed to do, that Cunningham touched him on the occasion in question (if, indeed, he touched or punched or pushed him at all, which is positively denied by Cunningham and several other apparently credible witnesses). That if Cunningham was guilty of any negligence in the premises it lay in this extraneous act, the evidence shows beyond controversy. That this was not an act of superintendence, we are entirely clear.

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That a negligent act, although committed by one intrusted with superintendence by the common employer and while in the exercise of such superintendence, is not an act for which the employer is responsible, when it is not an act of superintendence under the statute, is clear upon reason and is settled by the authorities. Western Ry. of Alabama vs. Milligan, 33 So. Rep. (Ala.) 438.

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Primitive Damages.

The train on which decedent was a fireman broke in two between stations, and on the stoppage of the first section for water the second collided with it, hurling decedent, who was at the time on the tender, adjusting the water spout, to the ground, causing his death. None of the employes on the train were aware of the break, the conductor and one brakeman being in the passenger coach, another brakeman in the cab with the engineer, and the third unaccounted for in the testimony, except that one witness testified that at or immediately after the collision he saw him on the caboose. *Held*, that the evidence warranted an instruction on punitive damages on the ground of willful negligence. Louisville & N. R. Co. vs. Gilliam's Adm'x, 71 S. W. Rep. (Ky.) 863.

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Benefit Certificate.

A railroad employe was a member of a relief association organized and supported by the company and employes. The by-laws provided for the payment of benefits in case of injury or death, and that the acceptance of such benefits should release the company from all liability and that no payments should be made while any suit for damages was pending, or if damages were recovered. The employe was killed through the negligence of the company, leaving a widow, to whom his benefit certificate was payable, and children. The widow was appointed administratrix, and the amount due under such certificate paid to her on her executing a receipt acknowledging the sum paid as received in full satisfaction of such certificate and of all claims or demands against the relief fund and railroad company on account of such death. She signed the receipt individually and as "admrx." *Held*, that, as such administratrix, she had authority to so settle the claim, and the settlement was binding on the children. Though her signature to the receipt did not state of what estate she was administratrix, it must be inferred from the context that she signed as administratrix of her deceased husband. Though the amount paid under the certificate was only the amount which by its terms was payable to the widow, by receiving it as administratrix also she was bound thereby to account for it in her capacity as administratrix, and it therefore furnished consideration for the release in that capacity. The authority given to administrators by Burns' Rev. St. 1901, Sec. 2456, to compromise debts due to the estate only when ordered by the the probate court, relates only to debts and demands in favor of the estate, and does not relate to the right of action given for wrongfully causing the death of the decedent. Pittsburg, C., C. & St. L. Ry. Co. vs. Gipe, 65 N. E. Rep. (Ind.) 1034.

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Fellow Servants.

Where a locomotive engineer while leaning out of the cab window of his engine was killed by coming in contact with another engine, which it was charged was negligently placed in a dangerous position, too near the track on which deceased was passing, by the engineer in charge, such engineers were fellow servants within the meaning of the employers' liability act (Burns' Rev. St. 1901, Sec. 7083, subd. 4), which makes corporations liable for injuries to their employes "where such injury was caused by the negligence of any person, coemploye or fellow servant engaged in the same common service * * * the said person, coemploye or fellow servant at the time acting in the place and performing the duty of the corporation," etc. Pittsburg, C., C. & St. L. Ry. Co. vs. Gipe, 65 N. E. Rep. (Ind.) 1034.

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Injury to Railroad Engineer—Crystalization of Side Rod.

W. D. Collins sued the Galveston, Houston & San Antonio Railway Company for an injury received while in the employ of the company in the capacity of an engineer, occasioned by the breaking of a side rod of his engine, while the train was running, said broken rod crashing into the cab where he was sitting. The negligence alleged was in permitting the rod to become weak, cracked, defective, brittle and crystalized, and in the failure to properly inspect it. The company set up that it

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had exercised proper care through competent inspectors as to inspection of the engine; that defects, if any, in the rod, were not discoverable by the exercise of ordinary care, in other words were latent; that it had exercised proper care in procuring the engine from reputable manufacturers; that it was Collins' duty, under the company's rules, to have inspected the engine, and discovered any defect in the engine discoverable by ordinary care; and that the rod broke from Collins' negligence in handling the engine. Collins recovered a verdict for $15,000, which has just been affirmed by the court of appeals of Texas. In the course of its opinion the court decided that a question asked a locomotive engineer on cross-examination, "Is it not a fact that when the engineer who brought the engine in has made his report, and the engine inspector has inspected the engine, that engineers customarily assume that there are no defects, and the engine is ready for duty?" was not objectionable as calling for a mere conclusion; also where a rule adopted by a railroad company in terms requiring engineers to inspect their locomotive before starting on a run was generally, if not universally, disregarded, it was not negligence on the part of an engineer, as between himself and the company, to start out without making such inspection.

One of the assignments of error by the company on the appeal was the refusal of the trial court to give these instructions: "There is some testimony before you tending to prove that the defect of crystalization of a side rod might be discovered by putting the side rod in a press. As the plaintiff has not alleged in his petition, nor has he proven, that it was the duty of defendant to have subjected said side rod to such a test, you will not consider said testimony in making up your verdict, but will altogether disregard same." The company argued that while some of the testimony tended to show that the defect of crystalization of a side rod could be discovered by subjecting the rods to a hydraulic press, it was also shown that, to do this every time an engine was sent out on a trip, the company would have to have 2,000,000 engines to enable it to operate ite lines, which was manifestly impracticable, and for this reason the jury ought to have been charged, as requested, to discard such test altogether. With reference to this the court said: "The charge was properly refused. It appears from evidence that, when the defect of crystalization is not indicated by cracks (and there was evidence that the rod was not cracked), the method of ascertaining its presence was by placing the rod in a press. If the rod breaks under pressure, it is crystalized; if not, it is sound. If this be so, then from the further evidence that this rod appears to have been in use for about eight years, and that after such period of use a side rod is apt to become crystalized, and it does not appear that any such test had ever been used in respect to this rod, it became a question for the jury whether or not it was, under the circumstances, the exercise of reasonable care to have never subjected it to such test. While, perhaps, no one would say that ordinary care would have required this test to be repeated each time the engine was taken out, it might be said that, under the circumstances shown, ordinary care required such test of this rod at reasonable intervals. 71 S. W. Rep. (Tex.) 560.

The Bad Old World

There's plenty of good in this bad old world,
In spite of what cynics say;
There's many a hand held out to help
Another on his way.
The world is selfish, the world is cold,
And its idol is success;
Yet it often steps aside for fear
On the fallen it will press.

There's many a hero gives up his life
In humble duty done,
With no hope of glory to shrine his name
Past the setting of the sun.
Dearly the world loves dollars, and yet,
In spite of its grasp and greed,
There's many a doller freely spent
On the widow and orphan's need.

Bad as it is, with its vice and sin,
This old worn world of ours,
It bends with awe before pure things,
And love and faith are powers.
It may follow the winner and homage and cheers,
Though his right lies in a log;
But there is plenty in it who'll boldly still
Stand up for the under dog.

—Baltimore American.

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Washington Gossip.

Congress Only a Memory.—Washington is now treated to the rather unusual spectacle of Congress adjourned with the Senate of the coming Congress in special session. It seems rather odd to have one part of Congress meeting without the other, but President Roosevelt seems determined that certain treaties shall be ratified, especially the Panama Canal, so that work may go ahead.

There is nothing of interest to labor in the special session of the Senate, as it has no other function than to ratify treaties.

Labor can easily sum up the record of the Congress just adjourned. It did nothing either for or against labor. There seemed to be a deep-rooted idea that times are so prosperous that no legislation was necessary. Of course it is true that employment is pretty plentiful, but with the cost of living soaring skyward it can not be said that the highly-paid workman gets much of a margin for saving against the rainy day—let alone he who is less skilled. But Congress was indifferent to everything except the big appropriation bills and a few pet measures engineered by special people.

The Eight-Hour Bill actually got as far as the Senate calendar, but there it died with scores of other measures which went down because that shrewd old politician, Senator Quay, held up his man-of-straw Statehood Bill until he and his friends not only got what they wanted—but, what seemed to them quite as important— kept the other fellows from getting what they wanted.

There seemed to be no special or bitter antagonism against either the Eight-Hour or the Anti-Injunction Bill during the short session just closed—Congress was simply too busy with other things to even bother to fight them.

Control of trusts is interesting to organized labor, as to all good citizens, but even along this broader line there is very little to say. Both Senate and House were anxious to have a record for passing radical bills, but the net result has been nothing in particular.

Department of Commerce and Labor.—The new department might as well drop the "labor" title for anything likely to be accomplished, and it probably will within a few months. So far as any mortal can see there is nothing in it which will specially relate to labor any more than to agriculture, for instance.

Secretary Cortelyou caused a hearty laugh to go the rounds of official Washington when he put in a bill asking seven million dollars to equip his new department and suggesting about 116 clerks.

The young man had been around the White House long enough as secretary to the President, one would think, to know the futility of mortal ambitions in Washington, but it was thought that the very fact of his getting a Cabinet position under such unusual circumstances must have gone to his head, and he was judged leniently.

However, the new department is very modestly installed for the present in a building on Thirteenth street—far from new—and the floors are bare in Spartan simplicity and the furniture only veneered. The whole department occupies only one big office and an anteroom. This modest beginning would, of course, not prevent it in the least from doing good work.

What a scurry there has been for the labor secretaryship. It was given out that a man prominently identified with organized labor would be given an assistant secretaryship in order to justify the labor title to the department. About every man who could be called prominent and many of whom one never heard before were mentioned, but the writer knows one or two rather well-known men who declined to have the President consider their names, and it seems he declined of his own accord to consider the others, who had to be labeled as to their standing.

Now Secretary Cortelyou spreads gloom in the ranks of the ambitious by declaring that all his help will be taken from the ranks of the regularly certified civil service applicants. Still there are those who persist in believing that this will not apply to the so-called labor secretary.

Labor might as well understand that the new department will be primarily concerned with trusts and the extension of our commercial relations and that the problems which interest the workers will not receive attention from it for the first two or three years at least.

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President Roosevelt Thriving. — The writer happened to pass the White House the other day just as President Roosevelt and his eldest daughter, Alice, were returning from a horseback ride. The President looks as if he had already reached the 200-pound mark, and is gaining flesh right along, despite riding and all sorts of strenuous exercise. He is mournfully learning the lesson which the Washington climate enforces on all who live here steadily. They either acquire an uncomfortable amount of avoirdupois or else get so thin that they scarcely cast a shadow. In President Roosevelt's case the extra flesh is not any special mark of robust health, but means rather a clog to sustained work.

Mrs. Roosevelt is acquiring the other extreme of thinness. She looks fifteen years older than when she entered the White House, but she insists upon entertaining a great deal, and entertaining of the general sort is certainly popular in Washington.

That Wabash Injunction.—Judge Adams' injunction in the case of the Wabash Railway employes is causing much comment here. Public opinion seems to have reached the point where it sees the fallacy of attempting to force men to stay at work if they do not desire to do so. While the injunction might technically prevent the Brotherhood officers from formally ordering a strike, it is believed here that only the patience and moderation of the men themselves could keep them at work—and not any special fear of the injunction as such. A man high in judicial circles summed the whole matter up the other day when he pointed out that an injunction might restrain a man from committing an illegal action, but had no power to order a man not to commit a legal action.

If our Washington members of the judiciary would allow themselves to be interviewed occasionally along the lines of thought which they freely express at semi-social gatherings, it would have a very good effect on clearing up the fog on the public mind on the subject of injunctions.

It is safe to say that the Wabash injunction has so far overshot the mark that it will help organized labor in its campaign against the unrestricted and illegal use of the injunction which has been going on for some years and against which organized labor has protested in vain. It seems to be conceded here that Judge Adams' Wabash injunction would be reversed if the higher courts were to pass upon it.

Organized Labor Aggressive.—The reports from local and national unions affiliated with the A. F. of L. show that there is a widespread movement on foot for higher wages and shorter hours this spring.

It hardly comes in the shape of a contest, for the demands have been granted already in scores of cases, but the general public has no idea of how rapidly the nine-hour day is going into effect. Because it comes gradually, as each locality is well enough organized to get it, there are no spectacular features attending the performance, but it is a remarkable and a hopeful movement none the less.

Organization is going on, too, at a marvelous rate, and it seems to be only a question of how well each town or city organizes until labor secures marked advances. The A. F. of L. is probably the one source from which such statistics could be authoritatively given out, and its policy is the conservatice one of sticking strictly to business and letting results speak for th nselves.

EVA MCDONALD VALESH.

Compensation

There's never a day so sunny
But a little cloud appears;
There's never a life so happy
But has its time of tears;
Yet the sun shines out the brighter,
Whenever the tempest clears.

There's never a sun that rises
But we know 'twill set at night;
The tints that gleam in the morning
At evening are just as bright;
And the hour that is the sweetest
Is between the dark and the light.

There's never a dream so happy
But the waking makes us sad;
There's never a dream of sorrow
But the waking makes us glad;
We shall look some day with wonder
At the troubles we have had.

—Anon.

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Labor Notes

American Methods.—In commenting upon the results of the investigation of the "Mosely Commission," London Engineering says:

Mr. Mosely was struck, it appears, by the enormous development of American trade. He says: "The United States was, and is, forging ahead with a rapidity unprecedented in the history of nations. Britain was, and is, advancing too slowly for its own economical safety in the rush of twentieth-century competition." Engineering has been pointing this out for a long time by special articles and otherwise. The facts and figures given amply show the expansion of American trade. Mr. Mosely does not attribute the decadence of British trade wholly to trade unions; in his opinion employers are also to blame. He advocates American methods. Workmen in the United States are paid better, and generally their condition is better than in this country; but they produce a greater amount per capita than the men engaged in the same class of work here. If England is to maintain her supremacy in trade, it is essential that her workmen shall be of the best as regards quality and quantity of work. Will employers and employed work together for that end?

The other article, by Mr. M. J. Cunniff, records his experiences as gained by accompanying Mr. Mosely's British Commission on their tour of inspection and inquiry. He does not pretend to write as an expert, but he has studied the questions at issue, labor unions and the like, in order to understand the objects of the Commission. His description of some American methods is not reassuring—cheap foreign labor, poorly paid, "sweating" to secure profits, working at high speed, in unwholesome places, boys, girls, and women being employed. In other instances he speaks of better systems and conditions; of collective bargains mutually between employers and the representatives of the workers; also of employers who refuse to recognize the unions, but pay good wages and maintain good and wholesome factories and workshops. These employers seek to inspire initiative on the part of the employes, the latter being benefited thereby. Quality and quantity are exacted, but the pay corresponds. Mr. Cunniff thinks that there is a growth of greater confidence between employers and employed in the United States. He quotes Mr. H. R. Taylor's opinion as to laying bricks. The latter, representing the British Bricklayers' Union, shows that the American method would not be



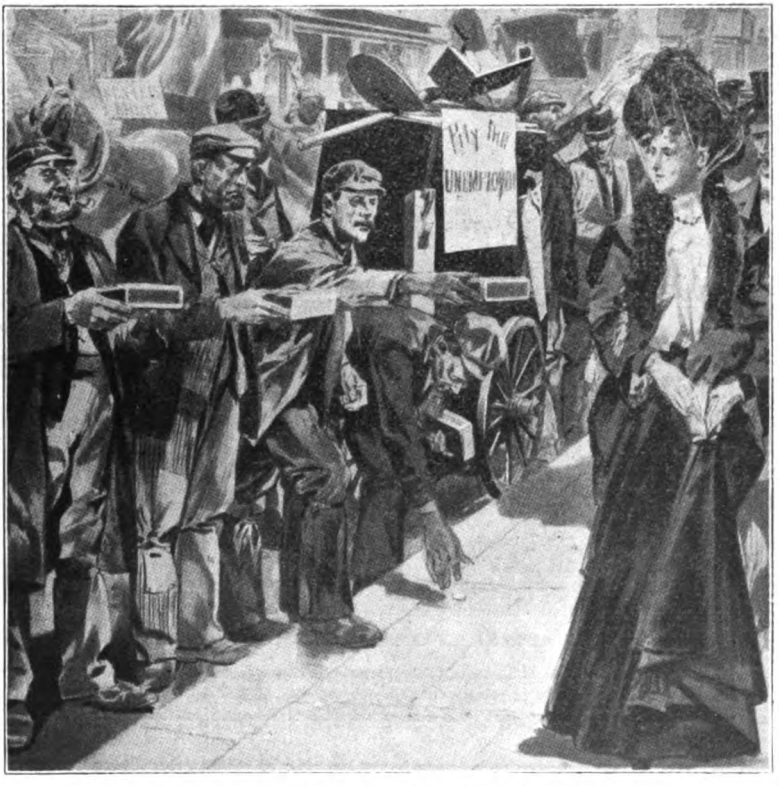
THE EUROPEAN COMMERCIAL DEPRESSION

This is a demonstration of London's unemployed working people. Application was made to the authorities for permission to parade through the streets. Police were furnished to lead the procession and preserve order. On each side of the line of marchers men with boxes solicited money.

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allowed by British architects, even if the builders were willing to adopt it. The writer thinks that too much is spent in management in British industries. In machinery he says that America is in advance of us. That is an old story. The minute division of industry is one of the reasons why the American workpeople produce so quickly. But in some trades at home, notably in the boot and shoe trades, the division is so minute that there are over 100 operations in some factories to produce a pair of boots.

lic mind in this connection are the organizations of labor and the newspaper press," says the Railway World. "The first has natural socialistic tendencies which in a higher development, however, are likely to disappear. The second is, with rare exactions, superficial in its manner of treatment and much more likely to be led by public clamor than to assert its own right of leadership. It would seem as though under these circum-



THE EUROPEAN COMMERCIAL DEPRESSION

The unemployed during the past Winter have resorted to begging in order to secure food for their families. This is a street scene in London

Going to the Bow Wows.—The New York Herald quotes Mr. James J. Hill as saying: "As labor unions killed industrial England, so they are destined to bring about a grave financial reverse in the United States, and the country is swiftly approaching that crisis. It may come in a year; it may be deferred till the presidential year, but it is bound to come."

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Capital to Educate Labor Through the Press.—"The two great forces affecting the public mind in this connection are the organizations of labor and the newspaper press," says the Railway World. "The first has natural socialistic tendencies which in a higher development, however, are likely to disappear. The second is, with rare exactions, superficial in its manner of treatment and much more likely to be led by public clamor than to assert its own right of leadership. It would seem as though under these circumstances the owners of property and the directors of industry were charged with a very plain duty. They understand the nature and needs of industry because they are a part of it. They can not hold themselves aloof from the popular discussion of industrial problems without denying to the public and themselves the greatest present opportunity for general enlightenment. The situation demands persistent and systematic efforts, and they should be made in disregard of whatever criti-

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cism might at first be aroused. If an effort to spread genuine knowledge of industrial conditions were made in one-tenth of the energy which political committees habitually devote to securing the election of party nominees, the result would very quickly be appreciated. Yet efforts of this sort are practically left to political groups whose leaders are almost invariably opportunists who take those positions which they think most readily can be justified before a more or less prejudiced public and ignore all issues, however pressing, which might temporarily force them into opposition to popular notions."

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A Country Without Strikes.—With this title Mr. Henry Demarest Lloyd describes industrial conditions and laws in New Zealand. Paper cover, 180 pages. Published by Doubleday, Paige & Co., New York.

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Cause of Flurry in Wall Street.—"The public has had a great deal to contend with in the market for months past," says the Railway World. "As quickly as one unfavorable factor was eliminated from the situation, another would develop. If it was not tight money, it was trouble over Venezuela, and when that question was removed, something else came to the front to disturb the peace of the street. At present it is the manufacture of new securities by the railroad and industrial companies and the prospects of gold exports."

♣ Labor Press ♣

The Philanthropy of Corporations.

The papers that lean toward the great corporations have been enjoying spasms of admiration over the bounteous Christmas gifts bestowed on their employes by the Standard Oil and the Steel Trust, which were in the nature of a pension after serving a term with the former and permission to buy stock at about par during good times, and the further permission of company to pay for it on the installment plan, interest to be paid on deferred payments.

The purpose of the pension plan is so apparent that it shines through the thin veil of pretended philanthropy like the sun breaking through the clouds after a summer shower. But it serves to delude those who are not employes of the Standard into the belief that after many years of faithful toil that company will hand over a sufficient amount to permit the retired employe to live in luxury and idleness the remainder of his days.

Corporations are in the business for making money and there isn't one iota of sentiment in their makeup that isn't founded on the fact of what it will return to the corporation in dollars and cents. The hurry and drive of modern industry in this country makes it imperative that the strongest employes, mentally and physically, be secured and these are found in men below a prescribed age, generally below that of thirty-five years. Men who have reached an age above that prescribed will not be employed as new men and employes who have reached an age where they are referred to by their younger associates as "old" can not compete with their fellows in the drive and are soon given other employment or are discharged because they are physically unfit.

Corporations are not insensible to the power of public opinion and they appreciate the fact that one of these days there is going to be a reaction in the public mind toward great corporations and their management that may take from them a few of their assumed privileges, which they now enjoy by virtue of the constitutional right of private contract. If they can by any means anticipate this change of sentiment they are going to do it, and apparently have selected the old age pension as one of the best methods to continue their practices and have the public approve them.

The usual statement made concerning the payment of pensions is to this effect: "After a man has been in the service of the company for twenty-five years and has reached the age of sixty-five years he will be retired and pensioned at the rate of one per cent. a month, based on his average earnings for the past ten years."

At present a new employe must be under thirty-five years, for, even where the age is not openly stated, it is understood by those who employ that there is a limit. A new employe starting at the maximum,

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thirty-five, must work thirty years before he is retired on his pension. If he breaks down, is discharged, strikes, or becomes incapacitated he loses his "old age fortune."

But if he lives and can hold steam until he is sixty-five years he becomes eligible for the corporation shelf and generally will be physically and mentally ready for it. If his earnings have averaged sixty-five dollars a month for the last ten years of his employment he will then receive his one per cent. a month, or the princely sum of six dollars and a half a month. The Standard Oil does much better than this, for it permits its employes who have been with the company for twenty-five years and who have reached the age of sixty-four, to retire on half-pay for the first year and quarter-pay for the succeeding years. This would mean, on the preceding basis of earning capacity, thirty-two and a half dollars a month for the first year and sixteen dollars and a quarter a month after that. The employe, in this instance, has worked for a corporation that has paid 100 per cent. dividends for a part of the time and 50 per cent. dividends for the rest of the time. Here is a division of earnings that does not commend itself to the average student of economics.

And how many employes will "voluntarily" retire? All of them, for the reason that retirement on the pension plan is like a resignation tendered when it has been demanded.

The number of old men about the great industrial plants is not enough to cause much concern to the companies employing them. They are not there now except in isolated cases and the future will see even fewer of them.

But, the public, when individual cases are not considered, is easily pleased and it will applaud the great heart of the corporation that "takes care of its old employes who have given their lives to the service."

There is but one commendable feature about the whole performance, and it is this: Taking it for granted that an employer can employ whom he will and under what conditions he chooses to prescribe, and taking it for granted that the right of private contract protects him in what he does and that he will "hire" the old men any way, the pension is a good thing. Every other argument of reason and fairness is against it as a philanthropic policy and stamps it as a simple veneer of corporation catering to the sentiment of the people who are not personally interested.

Why do they not say something like this: "An employe who has become physically unfit for the performance of his duties, or who has been with the company for twenty-five years may retire on half pay." This would mean that a man disabled would become pensioned if he had been in the employ of the company only an hour, or it would mean that an employe entering the service at the age of fifteen would have his pension at the age of forty and, according to the judgment of the employer, a man is worked out at that age. When these conditions maintain in the pension system the writer will applaud the corporations for being honest and consistent.

The Steel Trust has done something different. It has offered its employes a chance to buy stock on the installment plan, but it does not call attention to the fact that right now stocks are as high as they ever will be normally, for business was never better. The prudent employe will not forget that Steel stocks have not been tried by a test of hard times and it might be a matter of business judgment not to invest too heavily in stocks that have not been called upon to experience the tests of bad business when dividends on stocks that are admittedly one-third water may not be so heavy as they have been.

Papers like the New York Sun referred to the proposition as a humanitarian exposition of the liberal policy of the Trust. Is it? The employes pay for every dollar's worth of stock they get. They pay interest on deferred payments at 5 per cent., and they have three years in which to pay for their stock. The employe-holder of each paid-up share is to receive $5.00 a year per share in addition to the regular dividends. At the end of five years the stock-holding employe will "receive further compensation if the company's earnings justify it."

There is one thing that can be said in favor of this plan. It does not smack of the pretended pensioning of its employes as does the pension plan. It says in effect: "Pay the regular price and this company will give you a bonus if you remain in employment; if you quit it won't. If the company can afford it you will be paid as every other holder of preferred stock will be paid." There isn't anything to it except to offer stock on the installment plan, with interest to pay on the debt until it is paid and the inducement of bonus to the stockholders that might have a tendency to keep employes from striking. Simply a business proposition.

The fact that the Glass Trust is taking

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back the stock it offered to its employes under about the same conditions is some evidence that employes as a rule do not care for this character of investment.

All things considered, the Journal only can see in the corporations plans a desire to encourage friendly sentiment toward the great combinations through a pretended interest in the welfare of the employe, which in reality is measured by its earning capacity in freedom from the interference of public demand.—Railroad Trainmen's Journal.

* * *

Why Do Not All Laborers Belong to Labor Unions.

This is a question often asked, not only by those who belong to labor unions, but by those who do not. Perhaps it would be impossible to give any single categorical answer to this question, but possibly a few general reasons will fit most cases. By those who do not belong to labor unions, and who have a contempt for them, the question is asked in a sneering way and deserves no answer, but we are proceeding on the generally accepted, or soon to be accepted idea, that labor unions are here to stay. That is to say, there is no good reason, no logical argument why men who have labor to sell should be barred from combining and selling that labor to the best advantage any more than when two or more men who have capital should be barred from combining their capital in order to use it to a better advantage—this latter being an every day occurrence. Perhaps with equal force and more point it might be asked, why do not all people belong to churches, to political parties, clubs, etc., etc.? In many cases it is simply indifference and in many cases it is with at least a tacit idea or desire of getting the benefit of something for which they have never worked, or paid or sacrificed in any way; so that in a very large sense it is simply a case of one's "reaping where he has not sown"— they are willing and anxious to have the benefits of all the expense, trials, thought and heartaches of those who have given the best years of their lives and the best thought of their brains to bringing the cause of organized labor up to the point of perfection it now holds. Generally speaking, it matters little what reforms are sought or to be brought about, the vast majority of people are willing to let others do the hard, uphill, and ofttimes discouraging work required. The saviours of mankind are few, but those who would profit by the salvation are multitudinous.

It is altogether probable that if Washington and Lincoln had not put their great and intense personality into the causes, the success of which they saw and felt would bless the world, that other men would have been found to bear the heavy burdens they bore, but it is true, nevertheless, that they did assume the burdens and responsibilities and no doubt need be felt but that the great majority of men were glad the responsibility rested on other shoulders, albeit, in the case of Lincoln perhaps no great man was so severely criticised as he was at first. It is so easy to let someone else do the saving that the multitude usually goes in the direction of least resistance. Of course we are well aware that not to every one is given those qualities of leadership that make for success in certain directions, nor is it given to all to make good followers and the success of any cause depends upon having both qualities.

Neither is it an uncommon trait in men to wait until some reform becomes an assured success before they are converted to its beneficial mission. The iconoclasts also are to be found all along life's pathway, and ofttimes it matters little what merit is inherent in the image they would pull down. This, it will be seen, that the reasons for not joining the unions are numerous and none of them well taken.

Possibly, also, somewhat of fault lies with the unions themselves, because there are unions, and unions, and it should no more be expected that all are equally far advanced, or developed, than to expect all men to be so, for given any particular union, and necessarily its standard of excellence is the collective entity of its membership; or, in other words, logically no union can be as good as its best member nor as bad as its worst member, that is to say, the beneficent individuality of a union is made up of the sum total of its membership, divided by some indeterminate quantity, the resultant quotient of which would represent the fineness of the whole. We are, therefore, constrained to conclude that no large or extensive unfriendly reason exists, why more, or all laborers, do not join the unions.—Railway Conductor.

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Southern Cotton Mill Labor.

Mr. August Kohn has been making an exhaustive study of the cotton mill labor question in South Carolina. He is the Charleston News and Courier's staff correspondent, located at Columbia, the State capital. Mr. Kohn went about his work in a manner calculated to bring out all the material facts. He finds that the average cotton mill wage in South Carolina is practically the same in all the standard, established, successful mills of the State. It is 70 cents per day, including men's, women's and children's pay. He classes as "children" all under 16, the rule adopted by the superintendent of the census, for the government of the force that gathered textile statistics, and statistics of other industries in which children were employed.

In a typical mill he found the following employed:

Men	231
Women	127
Children	86
Total	444

The average wages paid was 78 5-9 cents a day. The total pay roll of this force for two weeks was $4,248.68, $8,297.36 the pay a month, and $99,568.32 for a year. None of these pay rolls, half month, month or year, included of the salaried officers, which amounted to $6,376.06 for a year, or little more than 6 per cent. of the total paid labor.

Mr. Kohn gives a list of family earnings in different mills, per day. The first family presented consisted of seven persons: Highest wage, the father, employed "outside," in the stock-room, etc., $1 per day; lowest wage, a boy in the spinning room, 40 cents a day. Total daily income of family, $4.77, weekly, $28.66, or, say, $860 a year of 300 working days put in. In another mill a family of six made $6.15 per day, or $36.90 per week. In this case the father, a weaver, earned $1.75 per day, and a girl and boy, weavers, got 75 cents each. Some families of seven made less than $4 a day. The average per family of six is given at about $4.50 a day.

It will be noted that the children employed in the typical mill given by this writer were about 20 per cent., one-fifth, of the whole force. There were no children in the weave room, none in the slasher department, none in the outdoor labor. The spinning room employed forty-six, the spooling room twenty-seven, seventy-three in all, or the whole child force save thirteen.

Children's wages in the mills run from 25 cents a day, $1.15 per week, to 60 cents a day, $3.60 a week.—The Tradesman.

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Cause and Effect.

The Indiana supreme court has declared the law against "pluck-me" stores to be unconstitutional, because it invades the rights of the mining companies to do business. A Baltimore court holds that the so-called sweatshop law, to prevent garments being made in dwellings, is unconstitutional, because it "impairs the right to the free and profitable use of property, whether occupied by the tenant or owner, thereby reducing its value, and interferes with the right to pursue any lawful occupation not injurious to others, in one's own home." Two more laws in favor of labor gone. Is it surprising that labor lacks faith in the fairness of the courts?—Typographical Journal.

The tremendous increase in the Socialist vote in the United States from less than 100,000 two years ago to nearly 300,000 has called forth an enormous amount of editorial comment from the leading newspapers of the country. Particularly is this seen in the Massachusetts papers, where the increase from 11,000 to 34,000 was most striking.—Wilshire's Magazine.

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Chinese Immigration.

When our Federal Government first had under consideration the questions which arose resulting from the Spanish-American War, we endeavored to impress upon the minds of all that difficulties would arise almost or entirely insurmountable should the policy prevail of the annexation of the Philippines and the sovereignty of the United States proclaimed therein, and this had reference to the problem of Chinese immigration to the Philippines, as well as Hawaii. It is and should be not only our duty to protect the people of the mainland of our own country, but the peoples, too, over whom we have assumed control.

The American authorities in the Philippines have some time ago proclaimed against the immigration of Chinese into the islands, and the law by which Hawaii was annexed contained a similar provision. For some time past the hue and cry has gone up from those who have always been pro-Chinese and antagonistic to labor for the admission of Chinese both to the Philippines and to Hawaii. True,

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their real aims are covertly clothed in terms for a "limited number for a limited period," and under "proper regulations;" when, as a matter of fact, all who know or who have studied the Chinese character and Chinese problem understand fully that once Chinamen are admitted regulations and limitations count for naught.

From several sources, most of them of a confidential character, reports have reached the headquarters of the American Federation of Labor to the effect that there are not only an abundance of Filipino and Chinese and half-breed laborers in the Philippine Islands to do all the work which may be required in the fields and on the plantations and in such factories as they may have; but that a large number of Americans and white men from other countries are stationed there; that discharged American soldiers who have remained in the Philippines, who are competent workmen in every branch of industry, are often vainly seeking an opportunity for employment there.

Apart from this, we have received several communications from those who have been in Hawaii within the past year, setting forth that the same conditions obtain there, except so far as the discharged soldiers are concerned.—American Federationist.

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Labor Organizations.

The labor organization is the means, and at present the only means, through which the wage-earner enforces his rights, and during the past twenty-five years this organization has done more to advance the interest of those who toil than all the other means combined.

It has lessened the hours of toil, raised wages, secured the prohibition of child labor (in some instances), improved the conditions of mines (in the soft coal districts) and factories and lent its influence to great social, economic and political reforms.—The Telegrapher.

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Child Labor in the South.

There was a bill introduced in the Georgia Legislature about two months ago declaring that no child under the age of ten years could work in a factory within the State, and the mill owners fought it bitterly, and succeeded in having its consideration postponed until the spring session. A bill will be presented in both the North and South Carolina Legislatures prohibiting the working of children under the age of fourteen years in any factory, mine or workshop, and it is expected that both States will pass the measure, the entire citizenry having become awakened by organized labor agitation to the enormity of the crime that was being daily perpetrated against both the future fathers and mothers and God Himself.

Thousands of columns have been written calling the attention of the public to this curse, but up to the present it has only been the labor agitator who has been endowed with manhood enough to publicly declare it a blot on the fair name of the South and a sin before Him who said, "Suffer little children to come unto Me."

We ask the mothers and fathers of this fair Southland who are endowed with enough of this world's goods to keep them in ease and permit them to raise their children in the schoolroom, to stop and think what would be their feelings if misfortune should overtake them and the reaper should call, if their children should be forced to go into the cotton mill, there to remain for twelve hours for a pittance of ten cents? You, my dear parents, can not conceive it, but still we tell you again that there are today 24,000 babies slaving their tender lives away, dying morally, mentally and physically, that few might grow sleek and fat. These same babies are the children and grandchildren of the men who in '61 shouldered their muskets and went to the front, there to remain until the last bugle call of "taps" was sounded, and who made the South stand out in blazoned letters for all time to come as the most valorous, the grandest and most glorious of all the nations of the world. These children, men who wore the gray for four long years, are the children and grandchildren of your comrades in arms. Will you let them be sacrificed on the altar of greed? Will you permit their little bodies to be dwarfed and their souls to be lost? Do you not owe a debt to the men now dead and gone that marched with you over many a bloody field with unfaltering step and face always to the foe? While you are building shafts to their heroism forget not the babies they left behind, but by law take them from the life of slavery, which is a thousand times worse than was the lot of the blacks before the war, and place them in the schoolroom, for on these same babies will rest the burden of protecting the fair name of your States a few years hence.

Rescue the children! Save the children! —Jacksonville (Fla.) Labor Journal.

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Use Common Sense.

In answer to several inquiries received by the editor regarding certain classes of investments we will say that in very prosperous times a great many schemes are invented for getting rich quickly, and they usually work to the entire satisfaction of the inventors, but those who are "let in on the ground floor" very often get nothing for their money except a very beautifully engraved certificate and an experience that lasts them to the end of their lives. The certificate shows that the holder has purchased so many shares of stock of a par value of anywhere from $1 to $1,000. It may be oil stock; it may be stock in some undeveloped perpetual motion scheme; it may be stock in some land and exploration company having rich prospects in Alaska or Terre del Fuego, but in nine cases out of ten the company owns nothing of value and the money paid for stock, aside from the experience which it brings to the purchaser, is money thrown away. As a rule, it is safe to assume that when a collection of individuals own properties of known value they do not lose any sleep in trying to sell them at one-twentieth of what they are worth. This is not the age when one man cares to put his neighbor next to what he covets himself. Common sense should be every man's guide when it comes to investing money.—Advance Advocate.



Morgan's Wonderful Offer.

J. Pierpont Morgan, whose stupendous financial operations keep the world guessing what he will do next, has evolved a wonderful scheme for fooling the public into the belief that he is a generous employer.

He announces his intention of setting aside a certain amount of the profits of the United States Steel Corporation each year with which to buy stock to be presented to the employes of the trust. In other words, the Steel Trust is to be made a profit-sharing concern, in which a small amount of the profits are to be divided among the men.

This scheme looks very fair to the public at first sight. But Morgan is not so generous as he seems. It must be remembered that when the Steel Trust was formed the constituent companies were paid about twice the value of their plants, in stock of the big combine, so that the more than a billion dollars worth of stock represents only half its face in real value. Water constitutes a half of the stock.

The Steel Trust did a big business last year, and its profits were immense. But there is a time for all things and a period of industrial depression would send steel stock down to its real value or lower. Then the men who are getting these certificates of stock in part return for their labor will find that they are worth only half their face value, and have accordingly been buncoed.

Morgan is a great financier, a wonderful organizer, one who is shaping the industrial course of our country; but when the real test comes, he is anything but a generous employer.—Los Angeles Union Labor News.

In Unity Lies Our Strength.

With the possible exception of the Pennsylvania, which has made its advance general, the increase of wages to railway employes hasn't yet reached the office men and clerks. Other roads which have advanced wages have done so for their yard and trainmen only. Clerks usually average about $50 a month salary. Their hours are unlimited, practically. Their duties are arduous and important. They are the nerves of the whole railway system, the connecting links between the administrative centers of railroad management and the actual working forces. Their high responsibility is therefore apparent.

These clerks have expenses that outside men do not have to meet. They are always compelled to appear well and dress well. Their duties, while of a routine nature, must be done with machine-like precision and faithfulness and are hence very wearing. Promotion is no more swift or certain with them than with the outside men. In short, the employes who have so far been recognized generally by the railroads are no more needy or deserving than their fellow employes, the clerks.

Perhaps the explanation of this apparent discrimination may lie in the fact that as a whole the clerks and office men are not organized. It is only within a few months that steps have been put on foot everywhere to organize these men and to affiliate them with organized labor. It is very apparent that if a man wants his interests to be recognized he must make common cause with others of his kind and give a unity and force and weight to his demands. Alone he counts

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nothing. A disorganized mass of men appealing for recognition counts for little. When these have, however, shown enough intelligence and ability to unite and cooperate with each other their pleas take on new importance and are likely to be heard fully. as much out of respect as of compulsion.

We do not think the railroads are meaning to discriminate against their clerks, but the first relief is always certain to go where the most need appears to be. Perhaps even if the clerks had been compactly and efficiently organized they would have had to wait for the salary recognition that they need, fully as much as the trainmen and yardmen. But experience the country over goes to show that in such cases union men come in first.—Railway Clerks' Journal.

National Labor Insurance.

This idea of insurance must ultimately be a part of the machine methods of production. It has been advocated in many forms. Ever so many experiments have been made in different countries, but if it is to be successful at all it must become a part of the production and methods of every day life. It ought to be legally established; it ought to be a part of our national economic system that every laborer shall be insured every day he works. Not that he shall be taxed, but that it shall go as a part of the cost of production from the employer into a fund, of which the government shall be the custodian and dispenser, so that no matter where he works or where he lives his insurance shall go on, and when his retiring age comes, at sixty years or whatever it may be, he is under no obligation to his children or his friends or to society, but is as free and as independent as when he was in his fullest vigor; that when he retires his wages, or a considerable portion of them, shall continue, not as a matter of charity, but as a matter of insurance to which his labor has contributed throughout his life.—Gunton's Magazine.

Political Enthusiasts.

The political enthusiast in and outside of the trades union movement, whose mind is filled with future glory about a seat in the legislature, has apparently changed his tactics within the last few years. Like the leopard, he has not changed his spots. We have still our suspicion about him. We must have more and stronger proofs that this change of tactics was not actuated by political strategy as a vote-catching experiment, before we can have any faith in his sincerity. Only a few years have passed since every leading advocate of trades unions was denounced, both in print and on the platform, as a fakir and a fraud.

This was at a time when the trades union movement was on the decline; when during a cruel period of industrial stagnation, the financial resources were barely sufficient to meet the expenses. This was at a time when the ordinary union, lacking in beneficial features, lost half or more of its membership; even some ceased to exist. This was a time when the trades unions needed most encouragement; when it needed hope and patience to wait for the periodical revival of the movement, which was inevitable.

What did the political enthusiast do during this period? He tried to divide the movement by starting the "Socialistic Trade and Labor Alliance," and denounced the best unions as being financially bankrupt, both in print and on the platform. Not many years ago one of the most prominent political enthusiasts delivered a speech under the auspices of the "People's Union" in Boston, Mass., from which we quote the following:

"Any man who contends that trade unions composed of skilled workmen are or can grow is an ignoramus, a false pretender or a blind fool."

Since the above denunciation was uttered the trades union movement has increased over 1,200,000 in membership. The above proves the colossal ignorance of the political enthusiast.—Cigar Makers' Journal.

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Sparks.

The regular monthly letter from First Vice Grand Master C. A. Wilson was received at this office too late to be included in the March issue of the Magazine, which accounts for its nonappearance in that number. The members will be glad to note Bro. Wilson's letter in this month's issue of the Magazine.

A member of Lodge 83 writes the Magazine that appropriate resolutions have been adopted by his lodge on the death of Mrs. Dean, mother of Bro. Isaac Dean, and they extend their sympathy to Bro. Dean in his sad bereavement.

If your letter is worth writing, it is worth signing. If it is worthy of your signature, it is worthy of publication, even though your name be withheld from publicity. Moral.—Always sign your name to the letter that you send to the Locomotive Firemen's Magazine, or you will never hear from it again!

Mrs. Mary Swegles, Manager and President of the Drill Corps, Holly Lodge 70 L. S., Buffalo, N. Y., writes the Magazine that they have received several letters from different places asking for a diagram of the movements, but are unable to comply with the requests as they have no guide to go by. Sister Swegles asks that all letters intended for the Corps be addressed to her at 329 Myrtle avenue, Buffalo, N. Y.

Bro. C. W. Huntress, Master of Lodge 368, Springfield, Mo., writes the Magazine that Bro. M. O. Rodgers, who recently transferred from 523 to 368, died of pneumonia after an illness of nine days, his death occurring on the night of January 31, 1903. The remains were laid to rest in Maple Park Cemetery, Monday, February 2d, under the auspices of the Order of Eagles, of which he was a member, with members of the B. of L. F. in attendance.

Mr. D. R. MacBain, author of "Locomotive Management, Break-downs and Their Cures," advises that he has been unable to fill orders for this book as promptly as he wished, on account of being unable to get them finished by the printers fast enough to meet the demand, but hopes to get all orders filled soon enough to avoid future complaint.

A union meeting of railroad organizations will be held in Montgomery, Ala., and Pensacola, Fla., beginning June 2, 1903, and continuing five or six days. Attention is called to letter published in the Forum department of this issue.

A member writes the Magazine that Mrs. Lee, widow of Bro. Wm. H. Lee, of Lodge 535, who was killed in a collision August 28, 1902, has purchased the "Q" Hotel in Brookfield, Mo., and has in connection therewith a nice lunch counter where the railroad boys may appease their hunger at moderate prices.

A member of Lodge 82, Minneapolis, Minn., writes that his lodge has lost a good and faithful member in its Secretary and Treasurer, Bro. Wm. E. Stover, who has gone to Seattle and will shortly move his family to the West. Bro. Stover has been an active member of his lodge, and has served 82 faithfully. He was also Secretary of the Legislative Board, which will miss his services.

In mentioning the names of those present at the meeting in the Grand Master's office in January 3, 1903, we omitted

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the name of the Grand Medical Examiner, Dr. W. B. Watts, who took a leading part in matters relating to the Beneficiary Department.

Reports have reached the Grand Master's office of the doings of one J. S. Collins, or John T. Collins, who has been traveling through Texas, Missouri and other parts of the country representing himself to be a member of the Brotherhood of Locomotive Firemen and conducting himself in a manner that is calculated to bring discredit upon the Brotherhood. An official communication from the Secretary of Lodge 174 to the Grand Master says that "this man has been expelled from Harrisburg Lodge going on five years." It is strange that a man can thus impose upon our membership. There is a way to detect imposters.

Grand Master Hannahan has been "on the go" almost constantly since the first of the year. Agreeable settlements have been reached, in which he has acted in an advisory capacity, on the C., H. & D., Chicago Belt Line, St. Louis Terminal, C. & A., and other roads, besides the "unfinished business" on the Wabash. He has only spent a very little of his time at his office because of these matters.

Forum

The Educational Test.

One of our leading papers commenting on the "educational test" for emigrants entering this country rather ridiculed the test, on the ground that it was unnecessary for those who were to be employed sweeping floors, digging ditches or carrying the hod, and like employment.

Judge, in its issue of February 21st, in a two-page cartoon shows what an awful condition skilled labor has placed itself in in this country by manacling itself with unskilled labor, and comments as follows: "Of all the unions on the face of the earth the labor union stands first as an all around failure. The labor is all right but the union is all wrong, inasmuch as it means a combination of skill and incompetence."

Both articles look as though inspired by capitalistic power. Both show a desire for an uninterrupted flow of *cheap* and *ignorant labor*. Labor to be cheap must be ignorant. There are two ways to have plenty of it on hands. One is an unbroken inflow from countries where educational advantages are not of the best, and the other is to keep this supply, once secured, in the same stage of ignorance in which it was received. The *man* must never be made as wise as the *master*. The unskilled and uneducated worker has been a powerful weapon in the hands of capital to defeat skilled labor with in time of a strike, or to keep him in subjection so that he would not strike. The unskilled and uneducated laborer was good enough for any position in time of need. He would be paid better wages than the skilled man. He would be boarded if need be at the capitalist's expense; the ruin of good machinery or material did not matter so long as the capitalist gained his point and defeated his skilled workers, and made them feel the weight of his displeasure.

In every way the ignorant and uneducated man has been taken advantage of by those in positions of wealth and authority. Skilled labor recognized the fact that the branch of labor known as the unskilled must be elevated if labor was to win in its struggle with capital, and the first step to this end was to organize or unionize them. Instead of assisting in pushing them deeper into the mire, union labor has endeavored to lift them out, and while it may be said to be a measure of self interest and not philanthropy that prompted it, it is not nearly so much so as the apparent sorrow of some papers over the woes of skilled labor on account of its union with the unskilled.

No doubt labor unions are not perfect; the best champions of trade unionism have never claimed that, but at the present time they represent the best means of protecting labor's interest. As the majority of the people labor it follows, consequently in the people's interests.

It is wonderful how every "Judge" arrives at the conclusion absolute that labor unions are a failure, as it puts it, "because it means a combination of skill and incompetence." The paper ignores all that has been done by unions to advance wages, to shorten hours, and to better the conditions for all kinds of labor. It would appear that the conclusion is made on a very slim and unreliable foundation.

The comment says further: "It might

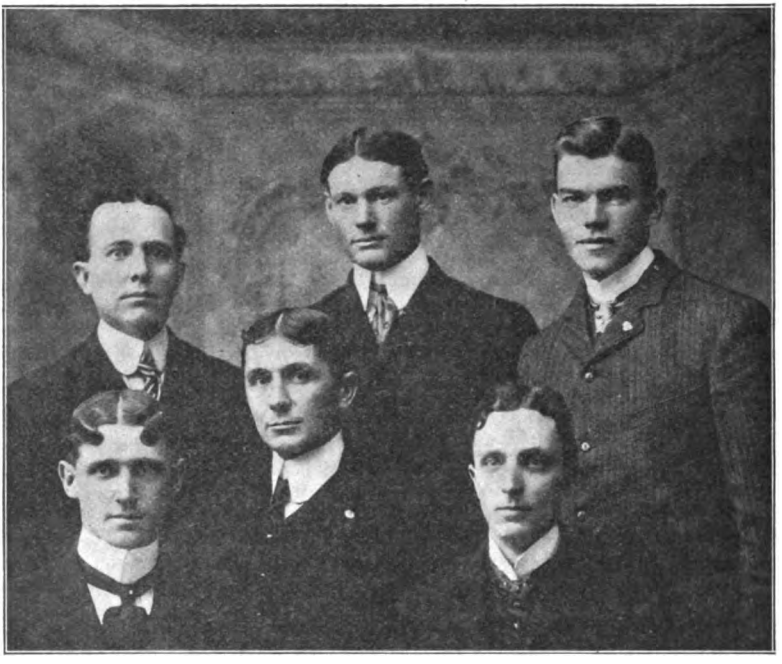
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be well for the workmen who does not know the art of handling tools to make a study of the truck horse and in doing so gather a line on his own limitations and thereby gradually sink to his proper level."

The advice is real pleasant and encouraging, from a capitalistic standpoint. No doubt labor will understand its real value, and also that of the paper which offers it. It is true that some skilled and unskilled workers join a union from selfish motives. They do not intend to help build up. Instead of being active workers they may be safely classed as drones. To the organization to which they belong they are of but little if any more benefit than the nonunion man who does not belong for reasons best known to himself.

Sometimes indifference keeps a man out; sometimes unwillingness to pay assessments, and sometimes actual hostility or sycophancy keeps men aloof from their order, but in any event they are about as beneficial as the member who only gives the trade union to which he belongs the benefit of his name on the roll book. In a strike such a member could be counted on for lukewarm support, and this might be given by a nonunion man. Either can not be relied upon. A scab and a strike breaker are one and the same. One might make a distinction without a difference. They are both merely temporary makeshifts for an employer in trouble. Neither party expects them to become permanent fixtures of the establishment in which they are employed. They are the scavengers of the labor world, and after they have done the dirty work for which they were employed the employer wants to be rid of them. He has no respect for that class of labor. He recognizes fully their incompetence and costliness, and he wants them not a day longer than he is compelled to have them. But he wants them so they can be obtained when he needs them to overawe and beat down his competent labor.

So the cry goes up for plenty of unskilled and uneducated labor to be admitted, and then to keep it in that condi-



G. N. Fish J. M. Bland, Chairman E. C. Williams, Secretary
W. B. Fenwick, Alt. Chairman
W. G. McKee C. N. Smith, Alt. Secretary

JOINT PROTECTIVE BOARD A. T. & S. F. (Coast Line) AND S. C. RAILWAY

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tion, and as it is impossible to do this with skilled and educated labor stretching out its hand to the uneducated, so the prejudice and self interest of the skilled man must be appealed to, but the plea will fail in effect, for educated trade unionism looks beyond what appears to be and sees what really exists.

W. L. FRENCH.

Standard of Membership.

With the hope of bettering the condition of our Order, I wish to say that we should be more careful in the selection of our material. The committee should be more thorough in its investigation as to the fitness of an applicant for membership, not that the B. of L. F. is on the retrograde, or that it is anything short of the standard of any labor organization in existence, but that we may raise the rank and file of our Brotherhood to a higher standard, we should select only honest, sober and industrious men—and should in all cases satisfy themselves that the applicant has good qualities, namely, honesty and sobriety. The others almost invariably go with these two. It has been my misfortune to meet with some in my travels who had an abundance of room for improvement, especially in the "booze" line, and when it came time to pay a board bill.

Don't think, brother, that I am expecting perfection, or that I myself am without fault. It is sobriety and honesty that I advocate. There are times when the best of us are hard pressed and not able to pay our bills, but none of us are so sorely pressed that we have to spend our living—and that of those dependent upon us—for "booze."

When a man gets so low that he will ignore the pleadings of his wife and family and the advice of his friends, and, upon the whole, his obligation and the teachings of the B. of L. F. as an organization, he is unfit for decent society, and it is high time that the Order is ridding itself of such a nuisance. And to save the trouble of trial and expulsion, do not work up such material into Brotherhood men, and thereby keep down hard feelings that naturally would exist during and after an ordeal like this.

When appointing a committee, always try and select some one who will investigate, and not report favorably without investigating, for such work as this is what gives the organization a needless black eye.

To have all systems well organized is strengthening a fact which none can deny. But in time of trouble who is it that can place confidence in one who has not enough manhood in him to spend his hard earnings for the necessary comforts of life, and not for intoxicating beverages?

There is not a labor organization in existence that stands higher in the eyes of the public than the B. of L. F., and none have had a harder struggle against adversities. Considering this fact, let us, each and every one, strive for a higher standing. The strength of each member depends upon the support of each other.

"Not enjoyment, and not pleasure
Is our destined end or way."

That the two preceding lines are true no man who has ever been on the head-end of a "tonnage" train will deny, but let us strive to have a pleasant remembrance in our declining years that we took advantage of each opportunity that presented itself, that we might elevate the craft.

I would like to call attention to the use of the traveling card. This is one thing that is being neglected to the detriment of the Order. We expect favors, and in return we should be in position to grant them when opportunity affords. So if you fail yourself to be posted in the use of the card you have no complaint to make against a brother whom you find out of date. My brother, always be on the alert.

"Still achieving, still pursuing,
Learn to labor and to wait."

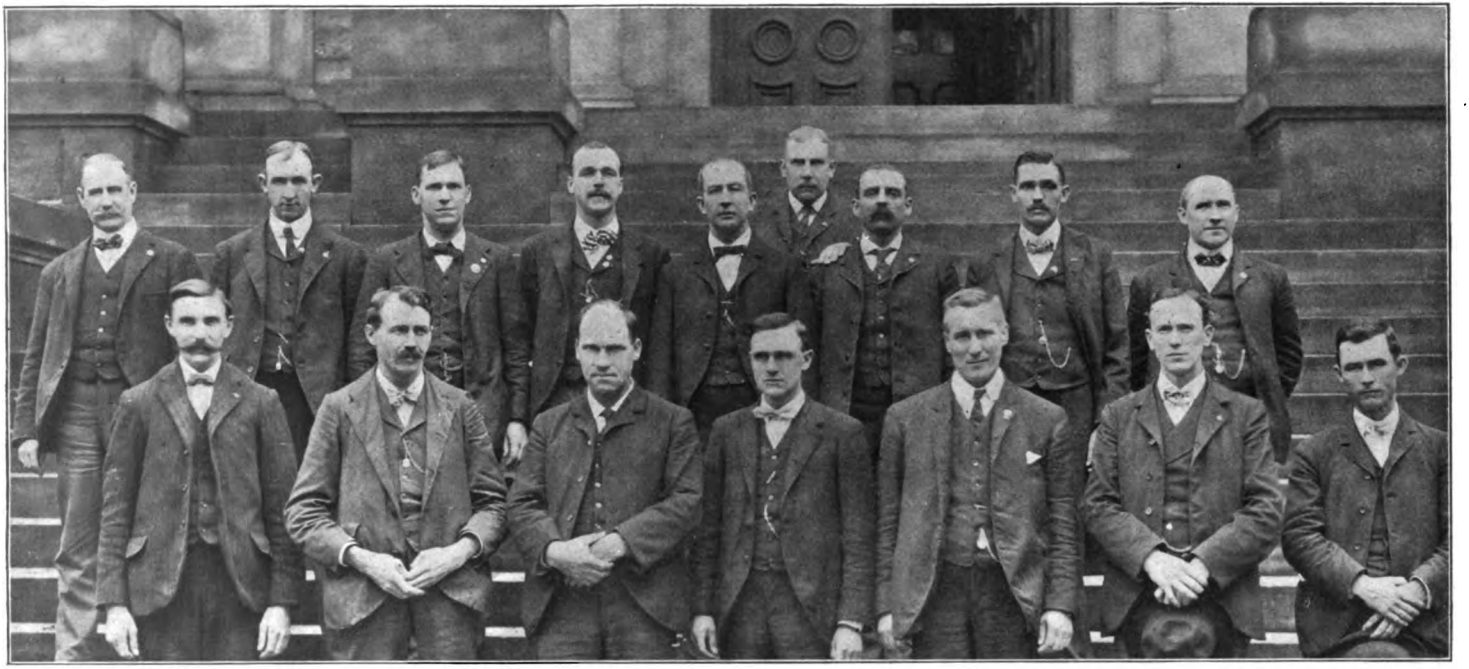
'Twas well said by the poet, for by our labors we shall eat bread, and to help others we must labor, and in order to elevate our standing socially, morally, financially, intellectually and fraternally we must learn to labor in the fraternal field.

One of our members from whom I expected the least has taught us the greatest lesson. Though he and many others of 598 are not aware of this fact, still it is so. It is simply this—and let us all try and emulate his actions: Help one another; give an erring brother good advice; try and bring him back into the fraternal fold; show him his duty by your own actions, for a lesson can be taught in no better way than to practice what you would teach.

Use all fair means to free our grand and noble Brotherhood from all nuisances and let us each set a good example before the other.

DILAR.

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JOINT PROTECTIVE BOARD, BALTIMORE AND OHIO SYSTEM

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Southern Union Meeting.

To the Officers and Members of the Several Lodges Brotherhood of Locomotive Firemen, State of New York:

Dear Sirs and Brothers—The importance of the repassage this year of the constitutional amendment which in effect permits the re-enactment of the Eight-hour Law, the Prevailing Rate of Wage Law, the Alien Labor Law, and other regulations for the protection of labor, can not be overestimated. Should this measure be passed again at the present session, it having passed both houses unanimously last year, it will be submitted this fall to the people and if ratified by them can be made effective by legislation in 1904. Should the bill fail to pass this year it must be introduced again as an original proposition in 1904, to be repassed in 1905, submitted the same year, and become possible of accomplishment only in 1906.

To save these two years of valuable time, and to prevent new complications which may arise in the meantime and save to workingmen throughout the State millions of dollars in wages, it becomes imperative to secure the passage this year of Labor's preferred measure, being Senate Bill No. 18, introduced by Senator Dowling.

It is of the utmost importance to all workingmen in the State to do all they can to secure the passage of the amendment as it will prevent the judiciary from declaring unconstitutional measures which may be passed in our interest.

R. E. QUIRK.

Chm. B. L. F. Legislative Board.

Albany, N. Y., Feb. 7, 1903.



Union Meeting of Railroad Organizations.

Until this time there has been only a few announcements of a grand union meeting of all railroad organizations to be held in Montgomery, Ala., June 2, 3 and 4, 1903. The Executive Council having in charge the arrangements of this meeting deem that the time has come when the members of the various railroad orders, through the medium of their respective journals and magazines, should be more clearly informed as to the nature of the union meeting.

It will be a union meeting, indeed, as the Council is composed of representatives of the B. of L. E., O. R. C., B. of R. T. and the B. of L. F., together with their several Auxiliaries, and one order is no more deeply interested than another. It is a "Southern" meeting only in that it will be held in the very heart of the "old South," and that the people here will try to revive the traditions of the past and verify to the visitors coming here from all parts of the country that the old-time Southern hospitality is still in existence. Every man and every woman belonging to these orders, whether from Maine with her rocks and forests of pine, Florida's glades, lone Texas' green strand, Jersey's bright shores, or far Oregon's coasts, all are invited most cordially to meet with us here at that time.

We confidently expect to meet our brothers and sisters "in the cause" from all over this country, Canada and Mexico, and will extend a warm welcome to all. It is the first time a meeting on so extensive a scale has been attempted in the South, but all indications point to a "blooming" success. A program will be arranged conducive to the pleasure and comfort of the guests for every hour of their stay with us, and on the expiration of the three days here they will be sent on special trains to Pensacola, Fla., for a two days' meeting which will in every respect rival the Montgomery meeting, as this charming little city, where one's very feet are washed by the warm waves of the Gulf of Mexico, is in every respect equipped to make the stay there one to be long remembered.

The established headquarters for the union meeting is in the Exchange Hotel, this hotel being the largest and oldest in Montgomery. In the committee rooms there will be established a bureau of information. A clerk will be in attendance at all times to answer questions and look after all correspondence, or see that all correspondence be referred to the proper committees. The railroad, business and professional people of Montgomery are thoroughly awakened to the importance of this meeting, to the magnitude of the undertaking, as it, day by day, assumes greater proportion, and all are resolved to make the Montgomery-Pensacola union meeting of railroad organizations the greatest one that has ever been known in the history of these orders.

One day of the meeting will be set aside as "Order Day." A separate hall will be provided each order for this day, and no doubt but it will be spent in a way that will be both pleasant and profitable for all. Otherwise, our union meeting will be purely social, and for one time the railroad people of our country can come

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together—can meet and greet—and after our union meeting is only a treasure in memory's storehouse we can not but feel that a "jolly lark" is all right, and 'twas good to be there.

Address all communications to J. C. Comer, General Chairman, or J. H. McCall, Secretary, care of Exchange Hotel, Montgomery, Ala.

J. H. McCALL.

Labor's Rights.

Never before in the history of this country has there been so much said in the daily press about labor organizations as now, from both sides of the question, offensive and defensive. Opponents of organized labor are trying to make the people believe that the country is going to everlasting ruin, now that the toiler, through his union, is asking for more pay and shorter hours.

The right to organize is, as a rule, no longer denied the toiler, and he is fast taking advantage of the situation, and will do what he can to better his condition. Capital has been organizing for centuries and will continue to do so under the present form of government. That large interests are consolidating every day is only too true. I presume that if you would ask some of our wealthy men why they do this they will tell you that they have the *Divine right* to do so.

A coal mine operator some time ago said that he had the Divine right to property and things, and those who worked for him had no right to dictate as to what their wages should be, or how long they were in earning them. Another employer of labor says this country, like England, is facing a crisis, because trade unionism is beginning to be felt in all industries in this country. One would think from what we read that the workingman, regardless of calling, was receiving an enormous wage for his labor.

Wages are not high and, as a rule, are scarcely above the living point. I don't know of one man or woman who toils for a living that gets a dollar more than they earn if they attend to business. Is there an employer of labor that believes a man can maintain his family and lay by something for old age on wages as small as $1 per day? I am sure that no one thinks it can be done; but if people can be made to believe it can be done, that is all some want to do. In order to have happiness in any country it is necessary that all working people receive a wage large enough to meet their expenses, and have a few dimes to put away for the stormy day. If the man who toils could get for his labor without organization what he does with it, there would be no need of his going to the trouble to belong to an organization for the protection of himself and family. Working people were for centuries without organization of any kind, and what was their condition? History tells us that men were slaves in olden times, and where they have no voice in what they shall receive for their labor now is to enslave them.

A man who goes forth to labor should have equal rights with his employer as to what he shall receive for his work, and how long he is to labor to earn it. Deny the toiler that right and you might just as well buy and sell him, for he is a slave. Intelligent people will not pay attention to the ranting of a few men who are opposed to labor unions. The labor union is here to stay, and the best will have to be made of the situation. The question of wages is a business proposition that both employer and employe are interested in, and one has just as much right as the other to dictate terms.

When we hear a man say that he has the *Divine right* to rule, and that he was given property by *Divine right* to hold, I am of the opinion that something is wrong with that man. If the Divine right to hold property stands good today, why not turn our country over to the few remaining Indians that are left on earth, whose ancestors were here long before a white face ever looked upon this continent. The Indian believed that this country was his by the right of his being here first, and the Great Father of the Happy Hunting Grounds gave it to him, and that nature would furnish all of the necessaries of life without much effort on the part of anyone. Just as soon as the pale face came and took possession of the red man's domain, then did trouble commence, and as society makes laws the right of ownership of property was given to those who had means to purchase the same, if they so desired, and such a custom has been handed down for years. Conditions will remain as at present until the people change the system that we have in the way of acquiring property.

There was a time when mankind bought and sold humans beings, both black and white. There has come a time when the sentiments of the people have changed, and no once now believes that anyone has

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the right to hold another as a slave, though to deny a man the right to say what his wages shall or shall not be is placing him little higher than a slave. There was a time when no one had any right to say what his wages should be; an attempt to do so was sufficient cause to imprison him. In this progressive age the wage earner is being heard in his behalf. Should a time ever come when land and other property be disposed of differently than now, it will be done by the people, and not by Divine Providence. When some rascal wants to cheat his fellowman out of his just rights you hear him cry out, "I am entitled to this because Divine Providence gave it to me." Working people are sick and tired of hearing the cry of the right to do this, that, and the other thing by Divine right. No doubt but what Divine Providence can carry all the blame that man is so willing to put on someone else. But my opinion is that Divine Providence has nothing to do whatever with the material welfare of the running affairs of this world. Man was placed on earth and was given a firm will, and the line between right and wrong was drawn, and each one is supposed to know where the one begins and the other leaves off.

That laws should be enacted to assist in bettering the conditions of the toiler goes without saying Laws may not be able to set a price upon the day's labor, but one thing sure, a law can be passed that will prevent long hours of labor in shop, mine, and factory. If the lawmaker carried out his promises after election, made beforehand, laboring people would have no fault to find, but, as a rule, promises are broken and there is nothing done about it. No sane man denies that capital has rights, or wishes to take from it anything that would in any way injure it. Capital is able to take care of itself, and does so without much trouble. When the time comes that capital and labor meets and settles all disputes that arise over the wage question, then and not until then will we see the harmony that should exist between the two forces. One is just as necessary as the other for the advancement of the material welfare of humanity. Should one try to get along without the other it would be a mistake. Therefore, let us hope and pray that the time will come when justice and right will reign instead of selfishness, so that all people may be happy and contented in this world of ours.

CHAS. W. MAIER.

The General Chairmen's Asscciation.

Several articles have recently appeared in the Magazine relative to the General Chairmen's Association, and as an officer of the same, I desire through the columns of the Magazine to explain to the members the objects for which the Association was formed.

The General Chairmen's Association was organized in the city of Chicago on March 25, 1901, with a membership of 15, representing several of the largest railway systems in the United States, who adopted by-laws for their government, subject to the approval of the Grand Master. It was and is still believed by its promoters that if properly conducted it will be the means of furnishing valuable information to Protective Boards when securing or renewing wage schedules with railway companies, and may eventually be the means of establishing a uniform standard scale of wages in certain sections of the country.

The large engines placed in service on the American railways have brought the protective department of the Brotherhood into prominence, it being through that department that efforts have been made to obtain for the men employed thereon, fair and equitable compensation for their services and, in many instances, these efforts have been successful. In the conferences with railway officials in the readjustment of wage schedules much valuable time has been spent endeavoring to ascertain what the wages were on parallel lines, and this information the Association will be able to furnish at all times and at little expense. On large systems of railway, such as the New York Central or Pennsylvania Railways, the daily expense of the Boards while in session is very large and, assuming that one of these Boards was in session for one day waiting for information regarding wages on parallel lines, the expense so incurred would be greater than that required to maintain a membership in the Association for one year.

It is also the purpose of the Association to, if possible, agree with railway officials upon a uniform scale of wages in certain districts as, for example, between Chicago and the Missouri River, or Chicago and Buffalo, when the conditions are about the same. There is no good reason why a fireman on the Chicago and Alton should not receive the same wages as are paid a fireman on the

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Rock Island, nor is there any reason why a fireman on the Pennsylvania Lines should not receive the same wages as are paid on the Baltimore and Ohio Railway.

The next meeting of the Association will be held in the city of Chicago the first Monday in May, and it is expected that every system of railway in the United States, Canada and Mexico will be represented, and that legislation will be enacted providing for a uniform scale of wages on the different railway systems within certain geographical lines, such scale of wages to be agreed upon by committees of railway officials and locomotive enginemen, fair and equitable to both, and to remain in effect until due notice is given by one or the other that a change is desired.

THOMAS BURKE.

In the Field

First Vice Grand Master.

On December 2, 1902, I visited Lodge 155 and found Bros. John Cusack, E. R. Wells and Henry Schlay way up in the watch tower looking out for the interests of their members. Bro. Victor Butterfield of 363 favored us with his presence and reported his lodge in good condition.

While in New York I had the pleasure of the company of a number of members of Lodge 149, among them being Bro. C. J. Johnson, who slings the goose quill as Secretary of 149. Charlie reports his as being the banner lodge of the Brotherhood.

December 6th found me at Charleston, S. C., working in the interest of Lodge 186, and after four days' work the lodge was put in good standing with the Grand Lodge and, with the watchful eyes of Bros. B. W. Jeffords, C. R. Rice, A. S. Moorer and H. Dautzler, we expect to hear that 186 is the banner lodge of the South.

December 13th and 14th found me at Alexander, Va., looking after the interests of the members of Lodge 258. I am sorry that I did not meet Bros. L. F. Harvey, J. O. Lynch, or any of the members. I hope to have the pleasure of meeting with these brothers and their lodge in the near future.

December 15th found me at Baltimore, Md., the home of Lodges 214 and 432. Both of these lodges are reported in good condition.

December 18th I paid a visit to the Erie roundhouse at Jersey City, and I found members of 543 as busy as bees.

December 19th I went to Elmira, N. Y., the home of Lodges 463 and 242. These lodges are reported in good condition. While in this city I had Bro. E. Denis of Lodge 463 examined for the allowance of his disability claim.

While at Elmira I enjoyed a sleigh ride behind the trotter of Bro. E. E. Welton, the popular Master of 463. Bro. Welton is still living to dye, and dyeing to live.

My next stop was at Hornellsville, N. Y., the home of the champion fishers of York State, Bros. James Collins and Geo. Schivers of 169. These brothers can catch fish, even if they have no pole or net. While at Hornellsville I enjoyed the hospitality of Sister and Bro. Joseph Hallett's home, and I am looking forward with pleasure to the eating of that old fashioned York State dinner at the home of Sister and Bro. J. Collins. While having Bros. Allen and Payne of Lodge 169 examined for the allowance of their disability claims I took advantage of the opportunity to meet with the lodge. We had a very interesting meeting and I found the lodge in good condition. Bros. G. E. Lynn, A. R. Howard, F. A. Halstead, and T. J. Glynn are a set of officers that can not be excelled. Bros. John Sanders and John McAndrews are the kind of trustees that every lodge should have.

My next stop was at Baltimore, Md., attending the meeting of Lodge 432. This is one of the largest lodges in Maryland. I found Bros. Chas. Pennell, T. B. Stringer, C. R. Street, and O. N. Robosson working like beavers to make their lodge the banner lodge of the Brotherhood.

My next stop was at Port Jervis, N. Y. The members of Lodge 1, through their committee, Bros. H. H. Dobbs, Rundal and Smith, had arranged for an entertainment for the public, and the way the citizens turned out showed that the members of Deer Park were popular in every sense of the word. Great credit is due Bros. Dobbs, Rundal and Smith for the success of the entertainment. Mrs. Rundal recited "They Answered the Call." Those present were loud in their praise of the fire boys.

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January 3, 1903, I arrived at Peoria, Ill., where I attended a conference with the Grand Officers, and to say that I found everybody busy, from the Grand Master down, would be putting it mildly. The motto of the office is: "A place for everything and everything in its place." It would be beneficial to the membership if it could see the magnitude of the business that is done in the Grand Lodge offices, conducted as our offices are, where the interests of 46,000 members are looked after, and so few mistakes made proves the efficiency of the clerks.

January 5th I visited the office of our Editor and Manager of the Magazine, Bro. Carter, and I found him and his able force of clerks getting things in place. Bro. Carter has his office so systemized that he has "a place for everything and everything in its place."

January 4th I attended a joint meeting of Lodges 417 and 22 at Champaign, Ill. I met Bros. Bates, J. Green, Geo. E. Brooklank, Stanley Baker, and F. H. Moore of 417, and L. Sullivan, A. Mallaw, and M. H. Trager of 22. This lodge was reported in good condition.

January 5th and 6th I met with Lodges 2 and 14 at Indianapolis, Ind. On the 5th I met with Lodge 14, and found Bro. Wiley, the popular Master, and Bros. Wm. Miller, E. J. Kline, and J. A. Farrell conducting the affairs of this lodge with that dispatch and enthusiasm necessary to have a good lodge. January 6th I met with Lodge 2. On arriving at the hall I found in waiting Bros. Walter Ferris, A. J. Multer, and T. C. Davis. This lodge is small, but they have the material necessary to make a good lodge, and the brothers I met informed me that they expect to have the banner lodge of Indiana. The afternoon of January 6th found me in company with Bros. Thos. H. Owens of 14, and Clark of 447, who piloted me to the hall, where I found a goodly number of the brothers in waiting. I am pleased to say that I found the lodge in good condition.

January 7th I bade the brothers of Indianapolis adieu and turned my face eastward, arriving at Bellefontaine, Ohio, the home of 527. Here I met Bros. Bergshicker, the popular Master, and C. P. Briggs, who hustled around and at 3 p. m. we went to the hall, where we found nine members awaiting our arrival. Bro. Bergshicker called the meeting to order in good old "Bee Line" fashion, and we had one of the most pleasant meetings that it has been my pleasure to participate in for a long time.

January 8th found me at Crestline, Ohio, looking up the brothers of 299. On account of the heavy business on the road I only met one member, Bro. F. E. Holzbach, who is the Collector of 299. He reported the lodge in as good condition as could be expected under the circumstances.

At Galion, Ohio, the home of Lodge 107, I found some of the old war horses, among them being Bro. Gearhart, who bears the title of roundhouse foreman on the Erie, and the members of 107 say that his heart is in the right place. While at Galion I held some very interesting meetings with the members of 107. Among the active members that I met was Geo. W. Bills, to whom I am very much indebted for courtesies extended to me. Bro. John A. Washner is looking after the financial end of 107, and I trust that the experience he and Bro. Gledhill have had will prove an everlasting benefit to them and the members of their lodge.

January 11th found me at Allegheny, Pa., meeting with Lodge 392. I had the pleasure of meeting Bros. Darfield, Fry, Lowery, and L. H. Martin. We initiated a candidate, which helped to enliven the occasion. The members seemed to be pleased to have a visit from a Grand Officer, and Bro. Martin says 392 will be one of the best lodges in the near future. While at Pittsburg, Pa., I met with Lodge 235, and well may the officers and members of this lodge be proud, for they have one of the banner lodges of the Brotherhood.

January 12th I met with Lodge 378. We had a very interesting meeting, and I found the popular Master, Bro. Elliot, and Bros. Southerland, J. H. Harkins, and C. F. Hinsdale working with their usual interest to advance the condition of their members. I am pleased to say that I found the lodge in good condition.

January 14th I met with Lodge 434. Owing to the members laying over at New Castle, Penn., we did not have a large attendance. Bros. Sullivan, Sample, Millvale, and Ford Welk say that they will have the banner lodge when they get settled in New Castle.

January 15th found me at New Castle, Pa., for the purpose of meeting with Lodge 416, and I am sorry that we could not hold a meeting. I trust that upon my next visit I will have the pleasure of holding a meeting with these brothers.

On January 18th I met with Lodge 465, and I believe it was one of the best meetings it has been my pleasure to attend in a long time. I found Bro. Miller,

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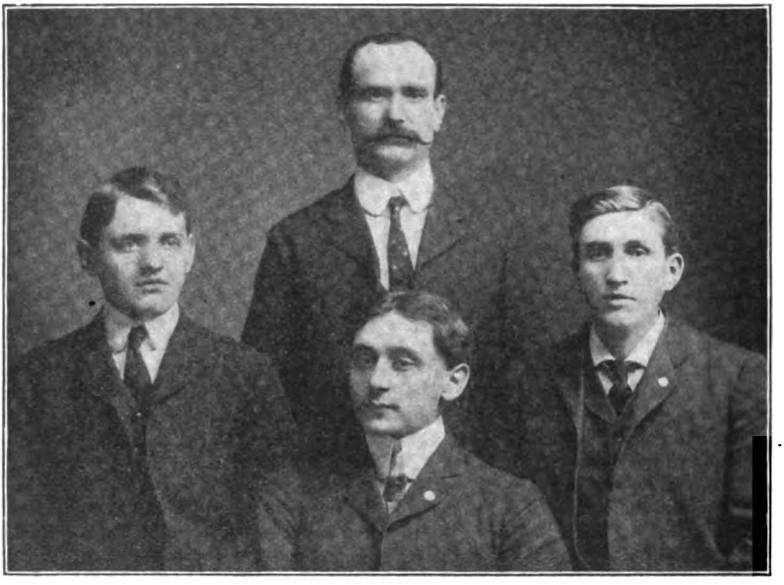
the popular Master, and Bros. Gress, W. L. Blansett, and T. S. Krepps looking out for the interests of their members. Great credit is due these brothers for the splendid condition of their lodge.

January 19th I met with Lodges 318 and 569. I am pleased to say that I found Iron City as strong as its namesake, and I attribute the good condition of this lodge to the efficient management of its affairs by Bros. S. W. Beal, Wm. Leonard, R. S. Knight, and R. W. Hill. Lodge 568 was reported to be in good condition by Bros. T. W. Bell, H. F. McVicker, and A. B. Cogley. It is evident that these brothers are interested in their organization when they will leave the comforts of their homes and come a long distance to attend meetings, thereby spending the whole night. The popular Master of 568 has a liking for pink teas and he is contemplating giving up railroading and going into the tea business. The members of 568 wish him success.

Bro. H. E. Lowe of 318 is an ideal member. Bro. McGuire of 378, member of the local board, is a credit to the road which employs him.

While at McKees Rocks, Pa., I found my friends and brothers, C. L. Hinsdale and H. Warrick, still acting as engine dispatcher and roundhouse foreman for the Pittsburg and Lake Erie Railway.

January 23d, 24th and 25th found me at the beautiful city of South Cumberland, the home of Lodge 448 and Ladies' Society 41. On the evening of January 23d a joint public meeting was held between the Ladies' Society 41 and Lodge 448. The meeting was well attended; there was some disappointment to the public, as well as to the Ladies' Society, when it was announced that Sister Sargent, Grand President of the Society, was unavoidably detained. A banquet was held at the home of Bro. A. B. and Sister Miller. Among those present were Bro. and Sister Rice, Mrs. M. Liller, Mrs. A. Smith, Mrs. F. Seitz and Mrs. Ida Wertz. A pleasant evening was spent and when all was over happiness beamed from every eye. This sentiment was heard: "May we meet again and again around the banquet table of Bro. and Sister Miller." The cordiality made us feel that this world would be a desolate place without the social gatherings. All were sorry that Bro. Miller was detained away from home. We missed his smiling face; however, Bro. Rice represented him eating ice



J. G. Price, No. 222

W. J. Murphy, No. 358
Secretary-Treasurer

A. H. Creighton, No. 565
Chairman

B. Mulcywaki, No. 322

JOINT PROTECTIVE BOARD G. G. W. RAILWAY

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cream. On the evening of January 24th an entertainment was held, and ladies of the Society, No. 41, assisted the members of 448, thereby making the entertainment a success socially, as well as financially. Miss Edith Turner gave us sentimental music on the piano, Mrs. Smith recited "They Answered the Call," Miss Mable Lin sang the illustrated song "Mr. Conductor, Please Don't Put Me Off the Train," Miss Bertha King sang the "Holy City," and Mrs. K. C. Compton, "Star and Flower." These ladies all come in for their share of applause, and the members of Lodge 448 are very grateful to them for their assistance.

The committee, Bros. Rice, Brown, Miller, and J. H. Ayres, deserves credit for the able manner in which it conducted the entertainment. I am indebted to Bro. John Campbell of 448 for assistance rendered while at Cumberland. January 25th I had the pleasure of meeting with the lodge, and am pleased to say that I found the lodge in excellent condition. Bro. Campbell, who handles the goat for 448, and the brothers from the Virginia Central R. R., laughed all over their faces when Secretary Miller announced that there were three candidates in waiting. Come again, brothers.

January 26th and 27th found me at Brunswick, Md., working in the interest of the members of Lodge 430. Bro. George Catlett arranged for a public meeting on the afternoon of January 26th and there was quite a large attendance, considering the heavy business on the road. On January 27th there was an entertainment, and the way the citizens turned out would indicate that the fire boys were held in the highest esteem. The illustrated songs, "The Holy City" and "Mr. Conductor, Please Don't Put Me Off the Train," were sung by Miss Ella Phalen. Some very nice and appropriate selections were rendered on the piano by Mrs. Maggie Phalen. Little Miss Hovermale made a hit with her recitation of "They Answered the Call." The committee, Bros. O. M. Taylor, D. Riser, Geo. Catlett, E. N. Snyder and C. T. Mills, deserves great credit for the manner in which it managed the entertainment, and for the snug sum it turned into the treasury. The fire boys at Brunswick and Cumberland are the leaders in entertainments.

February 15th I organized Lodge 496 at Jersey City, N. J. The organization of this lodge completes the organization on the Lehigh Valley Railroad, as the men represent this road at the Jersey City terminal. I am indebted to the following brothers, Frank Smith and Jewel of Lodge 309, Philips of 149, Snyder of 543, and Baker of 13, for assisting me in organizing this lodge. This lodge starts out with 26 charter members, and Bros. Julian and Anderson say that the lodge shall always be in a condition to shine like her namesake, Black Diamond.

While at Jersey City I enjoyed the hospitality of Bro. and Sister J. Coats' home. I found that the ladies of L. S. 129 had not been unmindful of the untiring efforts and the interest their President, Sister Coats, takes in their Society, and as evidence of their appreciation of her faithful work a committee composed of the following sisters, Mrs. Thomas Venner, Mrs. Snyder, Sister Robenson, Mrs. Rube, Mrs. and Miss Sullivan, Sister Townsend, Sister Orben, and Sister Mitchell, assembled at the beautiful home of Sister Coats and presented her with a silver cake basket. The presentation speech was made by Sister Venner, to which Sister Coats responded in a very touching and appropriate manner, thanking the ladies for their handsome present, after which refreshments were served and all had an enjoyable time.

On February 5th I had Robert Kitchen of Lodge 272 examined for the allowance of his disability claim, as ordered by the late convention. Bro. John Everland, the popular Master of 272, reported his lodge in good condition. I am indebted to Bro. J. W. McCormick for courtesies extended.

February 22d I met with Lodge 11, which I found in good condition. Credit is due Bros. F. J. Raub, T. H. Maguire, Geo. R. Case, A. S. Cole, and Wm. Herman; these brothers compose the official corps of Lodge 11, and it would do the old members good to attend a meeting and see the proficiency of these officers. Bro. John Nice of 11 is an ideal Chaplain, and a Trustee, that believes in living up to the laws. At 211 I found the same spirit that this lodge has been known for, and that is, "Save the pennies and the dollars will save themselves." This lodge has an excellent corps of officers who attend strictly to business. Bros. Albert Frey, S. L. Smith, C. Dorshimer, D. David, James Thrope, L. R. James, S. F. Milheim, and F. Kiliser are up in the watch tower looking out for the interests of their members. Bros. S. O. Richards and J. Connors, while not in railroad service, have the interest of the railroad organization at heart just the same. H. J. Riely, the Past Master of Lodge 11, and N. Strauss of Lodge 253, were present and gave the brothers some wholesome advice.

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Mrs. Geo. Kist, Mrs. Albert Frey, and Mrs. Frank Sinclair of Ladies' Society 169, report their Society in a flourishing condition. This Society is the helpmate to Lodge 11, and the sociability that was demonstrated and the co-operation of the ladies with the members of Lodge 11 in their late fair and festival, should confirm the most skeptic member of the necessity of their wives and mothers, as well as sisters and daughters, becoming members of the Society.

Leaving Brunswick I was compelled to return home on account of having a severe cold. Arriving at home I was advised by my physician to remain home, as my physical condition would not allow me to travel. Therefore, I have done very little work during the month of February.

C. A. WILSON.

♦ ♦ ♦

Second Vice Grand Master.

The following is the continuation of my trip through the South as I referred to in the March issue of the Magazine. Being called away, it was impossible for me to complete my trip as I would like to have done; however, I hope to return again soon and visit all lodges in my district that I did not have the pleasure of meeting.

February 5th I arrived at Selma, Ala., where I held a very good meeting with Lodge 89. The boys are getting along very nicely in this lodge, they are greatly interested in the principles of our organization, and great credit is due to the Master, Bro. R. O. Harris, for his work.

February 7th found me in Tuscaloosa, Ala., working in the interest of Lodge 580. Formerly, Tuscaloosa was a terminal point on the Southern System, and a great many runs laid over at that point, but recently the division has been extended, consequently it has taken several crews to other points and away from their homes, and the men being out on the road, I was unable to hold a meeting. But I had the pleasure of meeting several of the boys, and I am pleased to report that the lodge is in good condition. The boys all regret, as well as myself, the sad accident that occurred to Bro. G. P. Humphreys, who is very popular among his associates. A few days prior to my arrival there he was firing his engine, when the drawbar broke between the engine and tank, and he dropped to the ground between the rails and the tank and two cars passed over him. Fortunately, the train was not running at a very high rate of speed and fully equipped with air brakes, therefore the train was stopped very suddenly and before he was injured seriously. He was extremely fortunate, when you consider the perilous position he was placed in, and we all hope to see him around soon again. Bro. J. H. Lyons is a very enthusiastic worker and same can be said about Bro. G. H. Villiers, who is the popular Secretary. Those boys deserve great consideration and should be encouraged by all the other members at all times.

On February 9th I reached Bessemer, Ala., where I held a very interesting meeting with Lodge 583. This lodge is in good condition, which speaks well for the Master, Bro. J. J. Cutcliff, who takes a very active part in lodge affairs. Also Bros. McWhirter and Stephens are assuming their share of the labor and responsibility.

February 10th I arrived at Birmingham, Ala., where I remained that day in the interest of Lodge 439 and as the guest of Bro. Tom Cox, who is one of the most enthusiastic and thorough Brotherhood men that I have had the pleasure of meeting in all my travels, and while Bro. Cox is not at present engaged in active railroad service, his position being Chief Engineer in the Birmingham Fire Department, yet he is doing all he possibly can to build up the organization in the southern country. He is, at the present time, making many sacrifices in the interest of the Brotherhood, and he is entitled to and deserves great credit. I desire to thank him very kindly for his kind hospitality while I was in the city of Birmingham.

February 11th found me in Avondale, Ala., meeting with Lodge 426. This lodge represents the Southern Railway firemen and is in excellent condition. I had the pleasure, at this meeting, of meeting some of the most ardent and loyal members that any one would wish to meet, and they are so numerous that it is almost impossible to select any particular one who does not come in for his share of the credit. Bro. J. A. Herrick, the Master, who is also chairman of the committee, is carefully looking out for the interests of the members. He is a credit to the organization and the members certainly appreciate his good work. Bro. J. H. Griffith, who is the popular secretary, is deeply interested in the Brotherhood, and his work should be appreciated. I extend to him and his family my sincere thanks for their kind hospitality. I hope to return there again soon.

February 12th I attended a special

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meeting of Lodge 439 at Birmingham, Ala. We had a very interesting meeting, and as I said before regarding Bro. Cox, he being the Secretary, I am looking forward to see this lodge take its place again at the head of the list. With Bros. Cox and Silliman at the helm, there is no reason why it should not be.

February 14th and 15th I was at Atlanta, Ga., meeting with Lodge 247. This is one of the best, if not the best, lodge in the South. This lodge is in excellent condition, and I had the pleasure of presiding over one of the most interesting meetings that I have held in a long time. This lodge has an excellent corps of officers, and they are attending strictly to business. Bro. J. J. Lowler is the popular Master, and his work is greatly appreciated. Bro. Ellotte is an up-to-date Secretary in every respect. Bro. Newman, chairman of the protective board, is deeply interested in the men whom he represents. While at Atlanta I had the pleasure of meeting Bro. H. O. Tects, who is one of our old-time members, and who has been very conspicuous at several past conventions, and he is just as enthusiastic as in days of yore.

February 16th I reached Chattanooga, Tenn., where I held a very good meeting with Lodge 289. This lodge has increased in membership wonderfully since the convention. The members informed me that the convention has been very beneficial to the Brotherhood in and around Chattanooga in every respect. This lodge is now presided over by Bro. Barnett, and his associates should appreciate his good work. Bro. J. C. Gilbreth is acting Secretary, and is certainly a great credit to the lodge. Bro. J. A. Hall is giving all the aid and encouragement to the officers that he possibly can.

February 18th I arrived at Knoxville, Tenn., where I held a good meeting with Lodge 444. I was met at the station by a committee, headed by Bro. F. W. Lillig, who escorted me to the hotel, after which he piloted me around the city, inspecting the several places of interest. Great credit is due to Bro. W. R. Dobson for the interest he is taking in the welfare of the members. I regret very much that my stay in the city was so limited; however, while there I enjoyed it very much, and hope to return soon.

February 20th I arrived at Nashville, Tenn., where I remained for a few days, working in the interest of the Brotherhood.

On February 22d I received notice from Grand Master Hannahan to go to New Haven, Conn., for the purpose of meeting the Joint Protective Board of the N. Y., N. H. & H. R. R.; also instructions to meet with the Protective Board of the Long Island Railroad, and up to this writing, March 10, we are still in session.

It is with great pleasure that I advise the membership that everywhere I go I find our organization in a splendid condition, and in my opinion the outlook for our organization was never brighter.

TIMOTHY SHEA.

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Third Vice Grand Master.

The month of February, 1903, was a busy month for me. I feel that it was the most successful one since I have been in the field. The trip to Houston and San Antonio, Texas, will long be remembered. The committee on the Southern Pacific and the Arkansas Pass Railways certainly did their part for those they represented.

The work of a Joint Protective Board is anything but pleasant, as a rule, and often are the members of a committee criticised when there is no occasion for it, and more often than otherwise the fault finder would make a poor committeeman himself. It has been my pleasure of late to meet with splendid committees, and I appreciate the assistance given me on all occasions.

My next stop after leaving Houston was Van Buren, Ark., where I was privileged to meet with the members of Lodge 428. It had been quite a while between visits to this lodge, and I am certain that the visit did a great deal of good. I will go back again when the opportunity presents itself.

The visit to Ft. Smith, Ark., will be remembered for quite a while. The bad weather made it hard to get the members out, as I went there unexpectedly and no one was prepared to meet me. I will make it my duty to go back again some time in the near future and meet with the brothers of 345.

It became necessary to go to Little Rock, Ark., on important business, and while there I took advantage of this trip to hold meetings with Lodges 45, 304 and 551. The meetings were well attended, especially the joint meeting between Lodges 304 and 551. I am sure the question that was so thoroughly talked about in that meeting will be of benefit to all concerned.

It became necessary to go to St. Louis and hold a series of meetings that had been arranged for some ninety days pre-

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vious. Sunday, February 15th, was a memorable day with Lodge 481. The executive session began at 2 p. m., and lasted until 6 o'clock. Seven candidates were initiated into the mysteries of the Order, and from the way they walked across the sandy deserts, rough roads, rugged mountains, and then came out of the ordeal all safe and sound is, to say the least, they are now fireproof. Bros. Mincer, Linquist and Linck were on hand doing their part to make the many visiting members feel at home. The attendance was large, considering the very bad weather at that time. Following the executive session came the fine spread, and all were loud in their praise as to the way they were treated. At 8:30 p. m., a lecture and stereopticon entertainment was given, at which time the public came out in large numbers, notwithstanding the bad weather. The Lyceum Quartet comes in for their share of praise. The singing was very fine and the audience enjoyed it immensely. I am well pleased with the way everything ended, and appreciate the good work done by the members of this splendid lodge.

On February 16th I was at De Soto, Mo., meeting with Lodge 6, and a splendid meeting did we have. I am always glad to meet with the members of this lodge and am sorry that I could not have stayed longer with them.

February 17th will long be kept in the minds of the members of Ladies' Society 151 and those who came out to spend a pleasant evening. To the ladies of L. S. 151 belongs the credit of giving one of the best entertainments that it has been my pleasure to see for a long time. The meeting was called to order by Mrs. Frank Enny, President of 151 L. S., and in a few well chosen words she introduced the speaker of the evening. After the lecture Miss Bonnie Lottie Fox, the dance artist, entertained with songs and dances which were enjoyed by all. Miss Celestine Circle and Miss Edna Murray entertained with fancy dancing. It was surprising to see what those little ones could do. Mrs. Angelo Flaherty sung the several illustrated songs, and everyone spoke in the highest praise of her singing. Mrs. Mary McKinzie, the Secretary of 151 L. S., kept herself busy making everyone feel at home. Bros. Will Canfield, Frank Enny and Robt. McKinzie did their part towards making the entertainment a success. Dancing was indulged in until a late hour, and I am sure that all had a good time. The ladies deserve much credit for the undertaking, and I assure them that I appreciate more than words can express their kindness to me.

I am pleased to inform the readers of the Magazine that on February 19th Lodge 516 was instituted at Danville, Ill., with 14 charter members, and on February 21st Lodge 620 was instituted with 14 charter members at St. Elmo, Ill. The outlook for these lodges is good, and I wish them success.

Several days were spent with the Kansas City Southern Joint Protective Board at Kansas City, Mo., and I hope that these meetings will result in much good to our members on that line.

I am at this time, March 4th, expecting to make a trip to the Pacific Coast on business connected with the Brotherhood, and it will be my purpose to write up what I may see that will be of interest to our members, and have the same published in the May Magazine.

In conclusion I wish to say that the outlook for the Order continues to be good at all places that I visit.

CHAS. W. MAIER.

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Fourth Vice Grand Master.

On February 1st I met with Lodge 67 at their regular meeting. This lodge being so well known, comment is not necessary. Suffice it to say the old war horses, Bros. Brent and Pratt, were in their accustomed places, which means lodge business done in a proper manner.

I went to visit Lodge 596, but on account of business on the road we could not secure enough members to hold a meeting. This lodge is in good condition considering the fact that a fire last December destroyed all their efforts, which had to be replaced.

I held a meeting with Lodge 262, which had the largest attendance of any lodge I have been privileged to meet with since starting in the work. With Bro. Wark in the chair, and a good set of officers, this lodge is setting a good example in floor work, condition of lodge, and in adding to their membership.

While in Montreal I had considerable missionary work to do regarding transportation, and assisting some of our brothers. I then went to Shawnigan Junction, where I organized Lodge 144 with 15 charter members. This lodge is situated on the Great Northern Railroad, 104 miles from Quebec. I will briefly inform you of some of the difficulties ex-

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perienced in instituting this lodge. The first step was taken last September when the engineers and firemen, finding themselves in straightened circumstances, through being several months in arrears for wages and credit refused on all sides, decided to quit the company's employ. This being done, they were paid all but one month's wages. The first person who applied for a charter was dismissed, to reduce the staff, although not the junior man. His successor was dismissed for other causes. Being determined to have a lodge, others took up the work, collected the charter fee and applied for their beneficiary policies. Arriving there on the 7th, I held an open meeting at which quite a number were present. On the afternoon of the 8th when the lodge was to be organized, we only had five for initiation, the rest being called on duty. I held two meetings the next day and initiated four, also two meetings on Tuesday and initiated four more. The lodge supplies having not arrived, the work had to be done with one ritual and copy book in a large room of a dwelling, with a small table, and boards for seats. Bro. Lyttle was dispatched to Quebec for the supplies and after a whole day's search found them. When over the river at Point Levis, and not being able to obtain them, I had to go to Quebec for them myself. While in Quebec I initiated one of those dismissed when applying for the charter, on account of his being unable to present himself for initiation in Lodge 144 (he being one of the charter members). I returned to Shawnigan Junction with lodge supplies for the purpose of installation and instructing the officers in their respective duties. Not being able to have all the officers present I had to go 90 miles to install and instruct a brother before he could take an important office, which I did in a car in the presence of another brother, this being necessary on account of his postoffice, express, banking, and custom facilities. This work was all done with the thermometer averaging 8 to 10 degrees below zero, and snow four feet on the level. Some of our brothers think it too much trouble to walk to a lodge room in fine weather, but here is an example worthy of imitation, and a more loyal set of brothers I never met. A full and complete history of the organizing of Lodge 144 into the Order would be well worthy of perusal if printed.

I visited Lodge 134, and found this lodge in good shape and prospering under Bro. Brant's watchful eye. Business being very brisk I was unable to hold a regular meeting, although some of us got together and had a talk over matters pertaining to the Order. It does one good to see the interest taken in the work by some of our older members. Bro. Archie McDonald, who was initiated in 1881, is just as enthusiastic in the work as he was 22 years ago.

I held a meeting with 550 and found, on account of business, they had not been able to hold meetings regularly. We had one initiation, and several applications in to be acted upon. I arranged for a meeting with 610, but on going there I found only one brother who could attend the meeting, the others being absent on duty.

A splendid meeting was held with Lodge 335, several members being present, together with visiting brothers from 172.

A good meeting was held with Lodge 15, at which two candidates were initiated. If any brother wishes to see the degree work done in good shape, call on Lodge 15 when a candidate is in attendance and Bro. Donald in the chair.

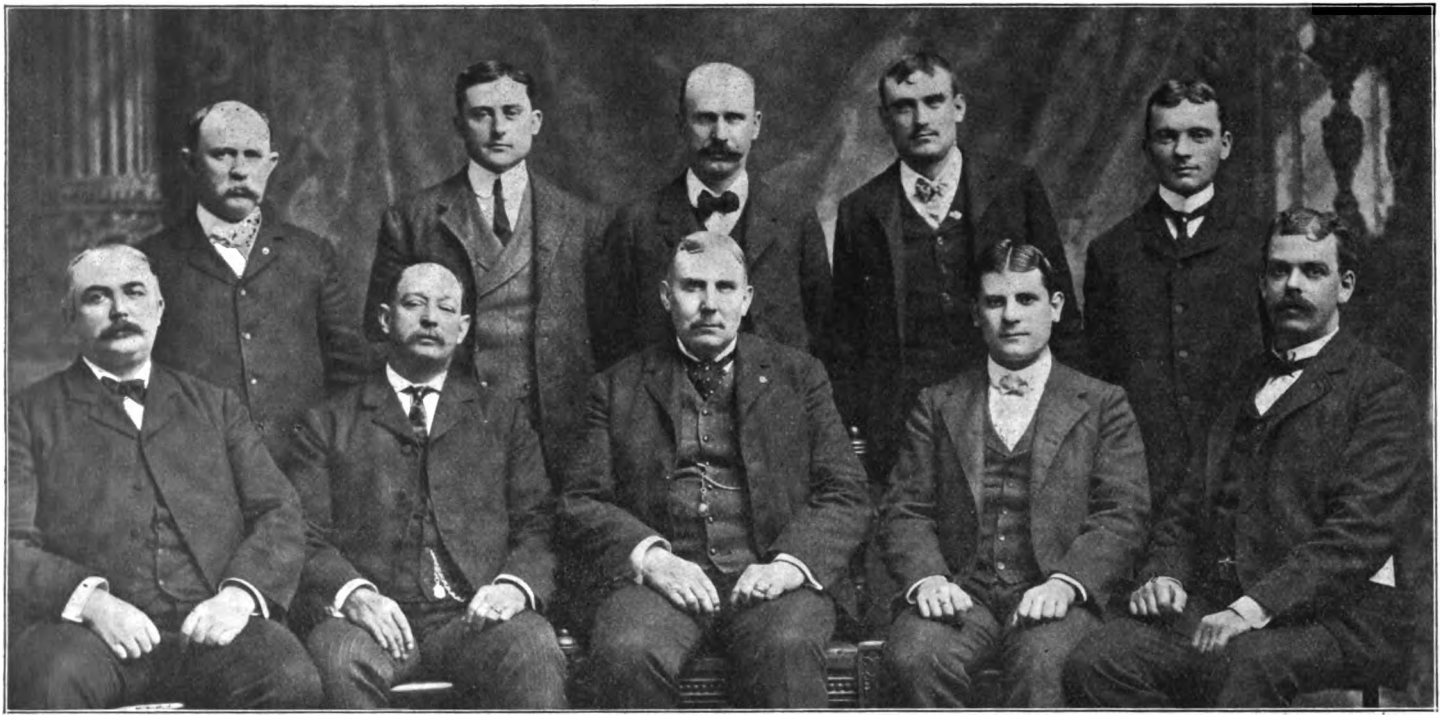
My next visit was with Lodge 479. We had a good meeting. I found the Lodge in good shape and added one more to the roll of membership, although it was necessary to lasso him to keep him from falling down stairs when approached by the conductor.

I had the pleasure of attending the first annual "at home" given by Lodge 161, Ladies' Society of Toronto Junction, who were ably assisted by the brothers of 262. The hall was beautifully decorated, and refreshments were served in abundance. A very pleasant evening was spent in dancing and in various other amusements. It was a decided success, both socially and financially. The wish was freely expressed that similar meetings of this kind would be more frequent.

I find in every place visited the impossibility of holding meetings with a fair attendance, owing to the amount of work on the different roads, and their inability to secure a sufficient number of men. I am pleased to note the large number of applications placed in the different lodges to be acted upon when the opportunity offers, which points to a large membership in the near future. I find the lodges visited in good shape, but impossible to hold meetings and have books audited regularly.

Ask Bro. Lyttle of Lodge 15 to put into writing how many miles he traveled, and what expressions he made use of, when looking for the supplies for 144.

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JOINT COMMITTEE ENGINEERS AND FIREMEN, BROOKLYN ELEVATED RAILWAY

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Any person seeing Bro. Clendenning on the outskirts of Montreal, please put him on the right track for Moreau Street.

Any business matters to be decided by argument, if placed in the hands of Bros. Cole and Johnston of 335, will receive immediate attention.

For honesty and integrity of purpose, Bro. Johnston of 172 takes the cake, "even on street cars this holds good."

For a member to work in the interest of his lodge and secure new members, Bro. J. T. Scott of 479 is entitled to the prize.

EUGENE A. BALL.

Correspondence

LODGE 573—(*Member, Roswell, New Mex.*) We have moved our little lodge to Amarillo, Texas, where we have arranged to have four meetings a month. We have been feeding the goat and training him up, for he sure has a task ahead of him. Now we have several applications on hand and several more that will soon be on the road. We expect to have one of the best little lodges on the Santa Fe System soon. There is considerable talk of consolidating with 325. If we do, business will pick up with the goat, but I think there is no danger of his heart failing him.

Bro. E. Weisinger had the misfortune to shoot himself through the foot Christmas with a 32-calibre gun, which has laid him up ever since, but am glad to state that he is able to be out on crutches now.

Bro. H. Davidson, who was laid up with a sprained ankle for nearly three months, caused by jumping from a derailed engine, is again on his run.

Several of the boys have changed over to the right-hand side, and still the good work goes on.

The machine shops have all been moved from Roswell to Amarillo, and our worthy superintendent of motive power and machinery, Mr. T. Booth, is taking advantage of the dull season to have every engine in first-class shape for the rush. The P. V. & N. E. have had a coal run on between Amarillo and Trinidad all winter, as the Ft. W. & D. C. Ry. have such a business they are unable to handle the coal.

Bro. Chas. Craimer, who was sick nearly ninety days, is again back at his post, running switch engine at Amarillo. We hear through good authority that Bro. F. L. Scogin is running switch engine for the E. P. & N. E. Bro. W. T. Scogin took unto himself a wife, and he has the best wishes of all the boys. Bro. Scogin was promoted to the right-hand side last fall.

I will try and furnish some lovely views of the valley in the near future.

LODGE 552—(*A Brother, Tyrone, Pa.*) I take great pleasure in informing the brothers that the members of 552 are still striving for the upbuilding of the organization. We have some good, earnest, hard working brothers, while some do not work as hard as they might. Now, brothers, I think the time has come when we should put our shoulder to the wheel and walk together, hand in hand. Remember, "united we stand, divided we fall."

I am proud to say that railroading on the Tyrone Division of the P. R. R. is not such a bugbear as it once was, although we have some very large engines, a very heavy grade, and the poorest quality of fuel that can be found under the ground. We have just received a 10 per cent. increase in wages, but yet they are small considering the work we have to do.

We have a very good membership, and our treasury is getting in fair circumstances, and if the brothers will keep in line we will soon see quite a change in Lodge 552. A great many of our boys have been promoted to the right-hand side. we have a good per cent. of the available timber in the Brotherhood, and a good strong goat to take care of all candidates, and they are coming to the front just as fast as they get in line. We expect to have seven or eight applicants ready for the next meeting.

Our Master, Bro. H. N. Stewart, has got to work again after being sick for over four months with typhoid fever. Also Bro. I. B. Hull's smiling face is seen once more after an illness of two months with fever.

We are glad and proud to know that our officials have been caused to see that labor organizations can and do produce better men and better services.

LODGE 348—(*C. M. Humphreys, La Grande, Ore.*). As though a bolt of lightning had been hurled from a clear sky, came the news of one of the most terrible wrecks in the history of the Oregon Rail-

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road and Navigation Co. On Sunday morning, January 25, 1903, two heroes in overclothes gave up their lives at the post of duty. Train No. 6, when about two miles east of Bingham Springs, Ore., and shortly before entering Meachem Creek Canyon preparatory to climbing the west slope of the Blue Mountains, on rounding a curve suddenly and without the slightest warning plunged headlong into a washout. The mail and baggage cars telescoped and piled on top of the engine. Engineer Thos. F. Patty of Division 362, B. of L. E., and Bro. W. M. Milligan of Lodge 348, B. of L. F., passed into the great beyond in the twinkling of an eye. Two days of warm rains, with the melting snows, made every mountain stream a raging torrent, and at this place the creek had in a very short time undermined the track enough to cause a terrible wreck. Engineer Patty was found at his post beneath the wreckage with his neck broken and badly scalded. Bro. Milligan was torn from the wreck in some manner by the raging flood and was not found until the next day, some three miles down the stream from the wreck. For the first time in a number of years is our charter draped in mourning. Two lives have answered to the Divine Master's call, and nobly did they respond.

Engineer Patty leaves a wife and three small children, and Bro. Milligan leaves a wife and two small children. The last sad rites were performed Tuesday, January 27th, by a double funeral service from Steward's Opera House. Mr. Patty's remains were in charge of the B. of L. E., K. of P., A. O. U. W., and Red Men, of which orders he was a member in good standing. Bro. Milligan's remains were in charge of the B. of L. F., that being the only order in which he held membership. Every business house in the city was closed in the afternoon, and indeed it was a solemn sight as a double column marched from the town to the cemetery led by the B. of L. E. to the right and the B. of L. F. to the left, followed by the other orders, behind which came the funeral cars side by side. At the cemetery the Knights of Pythias performed their beautiful service over Mr. Patty, and the beautiful service of the B. of L. F. was performed over Bro. Milligan.

The floral offerings were many and beautiful, being contributed by the various orders and the railroad officials. Words are unable to express our sympathy to the widows and orphans thus suddenly left to mourn their loved ones. Withal Blue Mountain Lodge 348 sends her loving sympathy to the distressed, and may we never be called on to witness a similar event.

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LODGE 99—(*Members, Rochester, N. Y.*) Ladies' Society 58 and Lodge 99 B. of L. F. held a joint meeting at Odd Fellows Hall, February 10, 1903. Sister Barry and Bro. Pruyn were in the chairs. Bros. Holden and Metzger rendered several vocal selections. Bro. Crouch gave us his usual quota of good stories, and Bros. Pruyn, Milliman, and Clark, oldtimers, spoke at some length on the benefits and growth of the Order. We regret to say that Sisters Ellis and Craft were absent on account of illness, but Sisters Long, Hunter and Acker gave selections in elocution that were well received by all. As a poetess Sister Acker is a decided success. Here is the result of her efforts: Here's to the Ladies of Lodge 58; please don't forget the sign when you come in late. And Master Pruyn, they say, is not such a crook, for once on a time he fired for Al. Hauck. And in the art of cooking he has quite a graft, has this boy Willie who belongs to Mrs. Craft. Then Holden believes music hath charms to soothe a savage, or to split a rock, or bust a cabbage. Then Arthur Pettis, who says he can't sleep; then whistles back up; I guess this will keep. Then there is Weidrick; guess he's no fool to accept a position at No. 9 school. And our Chaplain, of whom we all boast, this bright young man bears the name of Ed. Coates. Then Dintriff we know is quite a hummer when following his trade, that of a plumber. And Jimmie Cleary, our auburn-haired friend, who fires to dispatch for Harlo Glen. Frank Finch, with the name of a bird—but he's no bird—when a brother is in trouble his voice can be heard. And here's Willie Couch, who generally wears gray, to Lodge 99 he is their principal mainstay. Now, members, let us be grateful for favors received, and thank the ones by whom 'twas conceived. We hope for another, and that before spring, for we should always hold on when we have a good thing.

We regret to say that we forgot to mention in the last issue, the fact that Bro. Dintriff was presented with a fine baby girl weighing 15 pounds. While we are on that line what's the matter with Bro. and Sister Yerger's eleven-pound girl two weeks old? Before we leave this topic we expect Bro. Healey—well, we will continue in our next. There was a

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great deal of curiosity on the part of the ladies, naturally, as they were not included in any of the arrangements for supper, but to eat it, as the committee in charge looked after all arrangements and acted as waiters. You would think there was a football rush when the ladies tried to reach the kitchen. Bro. Dintriff's finger nails were full of dough. Bro. Coates' hair smelled of coffee. Bro. Finch looked like a sausage factory, and Bro. Yerger—well, he looked like a mammoth piece of angel food. When supper was announced everybody rushed for the supper room with mouths wide open, Bro. and Sister Pettis leading with Bro. and Sister Couch a close second. We regret to say that there was but one bean apiece, cause, Bro. Finch getting hungry before supper. The only person who shed tears was Sister Gougarty, cause, olives. The committee looked on in blank amazement when they saw the way the eatables were disappearing. When everybody had left the tables apparently satisfied, there was not enough left to feed a canary.

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LODGE 21—(*Owen McClain, St. Louis,* Mo.) I take great pleasure in informing the brothers that the members of Lodge 21 are still striving for the upbuilding of their lodge. Our meetings have been irregular, as business is rushing on the Terminal, but the goat gets a feed just the same. Bros. J. N. Harp, W. E. Murray and Louis Nordman became members at a recent meeting. Bros. Canfield and Barche have returned from the mountains of Colorado, where they had been on an extensive bear hunt. The only thing they had to show was a jack rabbit. Bro. Jack Kail is very sick, and Bro. W. D. Lutz is out of the hospital, where he suffered from a scalded arm. Both are getting along nicely.

The members went in a body to the entertainment and hop given by Lodge 481, Sunday, February 15th, at which stereopticon views were shown by and under the direction of Bro. Chas. W. Maier. The brothers who visited us at our last meeting were H. Wagner of Lodge 80, S. H. Williams of 6, and our old-time friend and brother, W. S. Ferguson of 481. Brothers, you are always welcome. The brothers of Lodge 361 have my best wishes. If the members want to see a good time they should visit them.

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LODGE 211—(*S. F. Milheim, Easton, Pa.*) Since April, 1902, we have admitted by card two, by initiation eighteen, dropped three, with four propositions under way and three more in view, a record that we all feel proud of, making a net gain of twenty-four for a year's work. Can any lodge beat that record for one year's work? At that rate and average, ten thousand members would cross the portals of the Brotherhood and become members of our noble craft. Think of it, brothers! Why not work with a will to increase the number in our Order, with such principles as it has, and with the cheapest insurance in the world? This may seem an overestimated expression to many, but nevertheless it is a true one, and can be proven by any member. I have tried it for twenty years, and know whereof I speak. There is not an insurance company or association in the world that offers advantages or insurance like it. It would not be out of place to mention a few of the advantages: There are six different total disability clauses, besides death, which make the insurance available. What do you think of a law which provides that in case of sickness or nonemployment your dues are paid up? Employment is solicited and secured by the employment bureau. Is this charity? Judge for yourself. This is charity in the broadest sense, and besides these benefits there are numerous other charity features of the B. of L. F. How can any one in it or out of it speak in derogatory terms of our noble Order? It then behooves us to work hand in hand and heart with heart in this noble cause, for where charity is preached and practiced charity will live, and God's approval will ever control it. To this I will simply add that the B. of L. F. and its members are strictly business in the enactment of its laws and principles. Where a man's treasure is there his heart is also, and that applies in this our cherished Order.

I will tell of our annual banquet. The members, their wives and sweethearts, as well as our friends who entertained us, said it was beyond comparison in every respect. The meeting opened at 12:30 p. m., presided over by our worthy brother, Past Master Tharp, and he did it in fine form. Bros. H. W. Wickkiser and Bert David were conductors, and they are conductors of the modern type, weighing 440 pounds together, and, with the assistance of 211's billygoat, you can imagine there was something doing. They were all in fine form, and the five candidates that presented themselves on that day found Howard, Bert and "Billy" full of business. At 3 o'clock the lodge closed, and Bro. Dan Berkert, with his loud bas-

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so voice and firemen's trumpet, announced that sixty-five of the fairer sex were in waiting in the lower part of the hall, asking for admission, and the genial and generous Dan welcomed the kindest and sweetest mothers, wives and sweethearts into 211's lodge room that our city affords. We gave them a mock initiation, which created some merriment, after which our friend, Mr. Edward Reilly, and Miss Alice Hopper, assisted by the talented musician, Grace Mader, sang to us a duet in Latin, which was applauded by the audience. The kind-hearted brother, Chas. Long, with his phonograph, struck up the latest pieces at intermissions. Mr. Joseph A. Rodgers sang a basso solo in fine style. The Misses Connors and Pohl, assisted by Mrs. Litzenberger, sang a soprano and alto solo very well. Then our talented brother, Albert Frey, gave us a recitation of "The Fireman as a Pedler," which took well. Our brother, Norman Fetherman, just back from the Yukon gold fields, dressed up with eight vests, four blouses and four coats, unknown to any one except the committee, created a storm of laughter by his impersonation of a tramp fireman. All of a sudden our catering committee, headed by Bros. Milheim, Conners, Keiser, Clemmer, Berkert, Gavin, Seibler and Smith, came upon the scene and stopped all proceedings by announcing that there was in waiting in the lower part of the hall a room full of goods, and asked the audience to kindly relieve them from taking them away again as they had been brought, and 144 brave-hearted people satisfied their hunger with dainties such as fried oysters, clam chowder, different kinds of meat, cake and cream. Bro. William Heil, being toastmaster, can tell us that no one went away from the room dissatisfied. Special mention is made of Bro. Archible and his best girl as the champion stayers. Bros. Eichenberg and Reaser are noted for their ability as oyster eaters. One of the features of the day was that the brothers of 211 had no assistance from their lady friends at the table, and it proved to be an occasion rarely enjoyed by the fair sex. When the clock tolled 9 p. m., all went away with best wishes for the B. of L. F. in general, prosperity for 211, and hoping to enjoy many such pleasant occasions in the future.

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LODGE 569—(*Member, Carutherville, Mo.*) As the little boy said when he went fishing, "I'll sit down here and drop you a line," not because I care especially for biting time to come, for I would have all brothers and readers of our Magazine know that there is not much left for one to do but carry the rod and gun, and go trolling and skating on the alligator division of the 'Frisco, way down here in swampy southeast Missouri.

The St. Louis, Memphis and Southeastern, with the St. Louis and Gulf Railway, was lately acquired by the 'Frisco, as a good many readers of the Magazine already know, and as a result all the boys have been very jubilant over the matter, for it means a great deal to the employes. We have had our part of the grief that necessarily attends one working on any "mud line," yet we have stayed in the game, and hit the ball despite the fact that we have not enjoyed standard pay, with hopes for a brilliant future to unfurl itself before our eager and tear-bedimmed eyes. We are now connected up with Cape Girardeau north, yet no trains have been run through on account of so much bad weather. Going south we tap the main line of the 'Frisco at Deckerville, Ark., 27 miles out of Memphis. I am not able to say just what our division will be when every low joint is raised, and all kinks and rainbow curves are eliminated, yet we hope to call Cape Girardeau and Memphis our terminals for all through trains. This would mean a division of, say 190 miles, which, with standard pay, would be something like a pretty fair job. A good many of the boys have gotten in line on our division, and some few belonged before coming here. The writer, with Bro. Jim Myers, belongs to 569 at Cape Girardeau, and several applications have already been sent in, passed on and accepted, and the goat is the only one now left to put the finishing touches to the poor victims that expect to be called "firemen."

Before another month rolls around. Bro. Myers and myself, accompanied by "Daddy" Reif, an old-time veteran and, by the way, one of the finest in the land and history of the Brotherhood, are going up to help the boys get their feet in the stirrups. Bro. Sam Frissel, our worthy Master, informs us the goat is getting terribly restless, having been locked up so long with nothing to eat but can tops, buck shot and twine strings. Several days ago a worthy brother came along through Paw-Paw Junction, where we connect with the Cotton Belt, and, noticing the writer standing there with overclothes stuffed in a pair of big leather boots, wanted to know what I was doing. I merely pointed to our three-car passen-

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ger train, which we are all very proud of. He looked down at my feet and laughed, but I let him know I belonged, and that every fireman on our division had to wear boots to keep the snakes from biting their feet in winter time. I extend my best wishes to every member of the B. of L. F., assuring all that every brother who comes our way will find a pie card, bed and seat box good for two.

♦ ♦ ♦

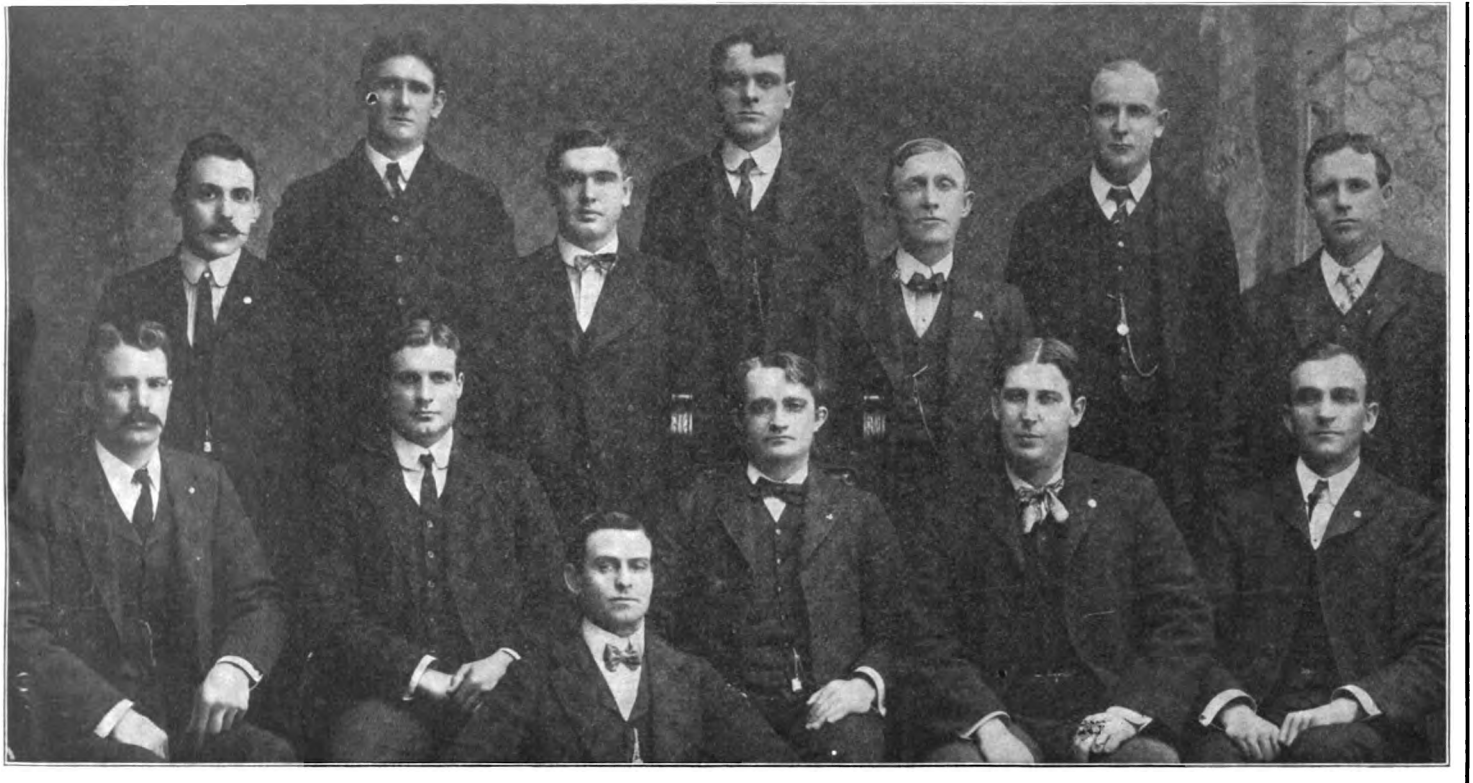
LODGE 314—(*Member, San Bernardino, Cal.*) On the 21st day of January, 1903, our beloved brother, Charles W. Beckett, was called from this life to the life beyond by being mangled to death in a collision on the Cajon grade. Shortly before 12 a. m. the regular south-bound freight, No. 33, in charge of Conductor P. H. Stuart, arrived at Blue Cut, three miles above Keenbrook siding. It was a double-header, engine 773, Engineer Book and Fireman C. W. Beckett in the lead, and engine No. 824, Engineer W. H. Reid and Fireman E. C. Clark following. On the trip down the grade from the summit the head engine was hampered by a loose tire and cut off from the train at Blue Cut for the purpose of taking the siding at Keenbrook and allowing the freight to single-head into San Bernardino. In pulling into the siding the loose tire of the disabled engine bent the switch point to such an extent as to prevent it being turned for the main line. It had been previously agreed that the lead engine should whistle when it had reached the clear, but owing to the fact that the enginemen, assisted by the head brakeman, were trying to repair the switch, this signal was delayed. After waiting for a reasonable length of time, Conductor Stuart made up his mind to cut off the second engine and follow to see what had happened engine 773. Upon arriving at a point a short distance from Keenbrook he received a stop signal from Engineer Book, who had gone back to flag them. Engineer Reid, on engine 824, answered the signal, and at the same time Fireman Clark happened to look back, and, to his astonishment, saw that the train, which they had left standing, was approaching them at a rapid pace. He at once gave the alarm to Engineer Reid, who attempted to catch the runaway train with his engine. He did so, but was unable to check it, and he and the fireman left the engine. Conductor Stuart for some reason stayed with the engine. Down came the train in on the siding where the ill-fated engine 773 stood. Bro. Beckett fireman of engine 773, remained on his engine, whistling repeatedly for them to stop, until the final crash came. Conductor Stuart's head was severed from his body, and Bro. Beckett lived in his mangled state just eight minutes from the time the wreck took place. Bro. Beckett's remains were brought down to San Bernardino on a special, and afterward taken to Los Angeles, the home of his parents, and laid to rest in Evergreen Cemetery. Services were conducted at the grave by members of 314 and 97, Brotherhood of Locomotive Firemen. Among the floral designs were the following: From Lodge 97, broken wheel of pink and white; Lodge 314, broken wheel of green and white; friends, snow-white pillow of carnations. Bro. Beckett leaves a wife, father, mother and two sisters to mourn his departure. To the bereaved ones, the members of Arrowhead Lodge 314, B. of L. F., extend their heartfelt sympathies.

Softly, silently we bore him forth to his dark and silent bed; weep not that he's lost to earth, weep not that spirit's fled. One last look, one parting sigh, ah! too sad for words to tell; yet though tears may dim each eye, hope we still, and sigh farewell.

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LODGE 157—(*F. L. Wade, Peru, Ind.*) On the night of February 19th the firemen of Echo Lodge 157 gave their third annual ball. It was not only a grand ball, but a grand success also. The hall was profusely decorated, and everything done was in accordance with B. of L. F. principles, which in all cases means success. The ball was attended by 200 couples of the pleasure-loving people of our city, and was well represented by the members of Peru Lodge 405, B. of L. F., accompanied by their wives and children. At 9 o'clock the grand march, headed by Bro. "Apple Butter" Yord and his fair one, opened the ball, which continued until a late hour, every one enjoying themselves. The music furnished by Professor Merril's orchestra, consisting of ten pieces, was of the best, and the repast served at intermission, at the National Hotel, was in keeping with the rest of the entertainment. The success, both socially and financially, was largely due to the ceaseless energy and judicial business capacity of Bros. Yord, Shanabarger and a few others. We reimbursed our treasury to the amount of $70, which, by the way, will help some in case of a needy brother.

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J. C. Hume, No. 312 H. D. Ryan, No. 542 G. W. Jones, No. 98
W. E. Sanford, No. 260 S. W. Burgess, No. 143 F. Nelson, No. 607 J. Peters, No. 19
H. Moore, No. 94 A. Phillips, No. 58 E. A. Clark, No. 193 G. F. Keith, No. 139 S. W. Hilliard, No. 97. W. H. Hemsworth, No. 91

JOINT PROTECTIVE BOARD, SOUTHERN PACIFIC RAILWAY
(Pacific System and Lines in Oregon)

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LODGE 356—(*William Woollen, Lorain, Ohio.*) Again we are called upon to express our deep sorrow and to sever all mortal relations with a brother who entered into that sleep of death on Thursday morning, February 26th, at 9:15, at his home. Twice within four months has our lodge been visited by the hand of death. Our esteemed brother, John A. Walter, has been removed from our midst. Bro. Walter was a true Brotherhood man and had many friends. It is with the deepest sorrow that our lodge room is once more draped in mourning, but we are reminded of that old familiar saying that "in the midst of life we are in death." Bro. Walter was a member of the K. of P. and K. O. T. M., large numbers of whom turned out to pay their respects to our departed brother, and bore witness of the esteem in which he was held. The remains were taken to Urichsville, Ohio, accompanied by members of 356 and L. S. 44, and friends and relatives. An impressive service was held at the church after which the remains were escorted to their last resting place. The floral offerings were very elaborate. To the bereaved wife and son we, the members of Lodge 356 and the sisters of L. S. 44, express our sympathy. Our earnest prayer is that our Heavenly Father will grant to them all that consolation which comes to those who cast themselves upon His bosom, and cry for strength to bear that which seems at times an impossible burden.

On February 20, 1903, at Hochstein's Dancing Academy, the B. of L. F. gave their third annual ball, and much credit is due the brothers for preparing and carrying out such a grand affair, for it was without doubt one of the grandest balls ever given by the brothers of 356. It was an enjoyable occasion, and the pleasure every one seemed to have, individually and collectively, showed that all spent a pleasant evening, had their anticipations fully realized, and were glad they had come. Being naturally proud of the B. of L. F., and our local lodge, I think we should be heard from through our Magazine, which I think is the best printed. Our lodge is in good condition and is improving. Our membership has been reduced during the past year, owing to a number of our old members joining the B. of L. E. We miss them, but console ourselves with the knowledge that they are still in the ranks of organized labor. While we believe that our Order is the best in the land, our goat is not working overtime. We have had an initiation at nearly every meeting the last three months. Business has been good here this winter, and there is no reason why the men who are on the outside should not join our Order. Our goat thinks so, too, and as he quietly chews the quid of silent meditation and casts an observing eye on the amount of raw material that has collected during the winter, he winks the other eye to remark: "You are my meat, stranger!" Our joint protective board has done good work during the past year, obtaining many concessions from the company. The relations existing between the officials and the protective department are pleasant, which is an incentive to us to go and do some more.

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LODGE 267—(*Member, Algiers, La.*) The brothers of Lodge 267 cheerfully accepted an invitation from the Ladies' Society 162 to join with them in a joint meeting, which was held March 1st. The meeting was largely attended by members of both lodges. Sister Vaughan, Secretary of 162 L. S., read a paper on auxiliarism, showing the brothers the worth of the Society. The brothers appreciated the sentiment of the ladies as described by Sister Vaughan, who said that the sisters were always ready to join hands with the brothers, and to assist them whenever the brothers need them. Brothers, think what a help our sisters can be to us, and encourage them in their good work. What can be more womanly than our sisters, wives, mothers and daughters banding themselves together to minister at the bedside of one of our brothers. How often do our duties take us away from home? What a comfort it is to our loved ones to know that if anything happened to us away from our home that some sweet woman is ministering to us and speaking words of comfort.

Joint meetings should be held regularly, as they serve to bring us together more closely. The committee in charge deserve great credit for the way they conducted the affair. All the boys join in giving thanks to the sisters for the good time had, and all look forward to the next joint meeting.

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LODGE 176—(*John P. Meehan, Clinton, Ill.*) On the morning of January 19th, at about 2:55, while many friends and loved ones were sleeping night's peaceful sleep, the sad news flashed over the wires that Bro. Herman Faesler had met death at Vera, Ill., in a rear-end collision caused

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by his own engine. The train that Bro. Faesler was pulling and the train in advance of his had orders to meet No. 156 north-bound at Vera, and the train in advance was standing at the station. The conductor in charge of Bro. Faesler's train noticed that he did not sound the whistle for the station, and that the speed of the train was not reduced, and he fully realized the approaching danger. Between them the distance grew rapidly shorter. All was still save the rumbling of the train. Faster, faster the monster sped, and he knew there must be a collision. Would any one escape? The hand of death hangs trembling over the awful scene. Eternity's gates stand ajar. How many and who will enter them? Behold there was a crash. The earth seemed to tremble, and volumes of steam shot high in the air, and one of the worst wrecks that ever occurred on the Illinois Central happened in this part of the State. Search was made at once for those who were injured. Bro. Faesler was found dead, and the fireman, J. Hurley, fatally injured. Fireman Hurley was taken to Decatur, to St. Mary's Hospital, where he died. The next morning his remains were shipped to Pittston, Pa., for burial. It is the general sentiment that Bro. Faesler stood dead at the throttle at the time of the collision. Bro. Faesler was considered by his home people as an honest, upright citizen, faithful, sober and industrious, and a model in every respect. His remains were brought to Amboy, Ill., for burial, accompanied by members of 176 and L. S. 158, where the funeral services were held from St. Mary's Catholic Church, of which he was a member. The floral offerings were many and beautiful.

Little we thought at our last meeting, with the one we loved so dear, by his grave we'd soon be standing, dropping down the silent tear. But we will not grieve or murmur for the lost one that we loved, for we trust that he's an angel, in the starry home above.

* * *

LODGE 448—(*Member, Cumberland, Md.*) Hello! Yes, I think 448 does need a correspondent. Our lodge is in fine shape and business is heavy on the road. All freight engines are double-crewed and we are looking for larger meetings in the future. While our charter is almost kept in mourning, still the membership is increasing very fast and every meeting night two or three candidates get their money's worth.

First Vice Grand Master, C. A. Wilson, gave an entertainment which was a grand success and every one enjoyed it. While the clinkers have been broken from the grate, and the tallow pot has been promoted to the right side, we have received but few applications for final withdrawal cards from the B. of L. F.

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LODGE 87 — (*H. Perrett, Rawlins, Wyo.*) The trains still stop at Rawlins, and I wish the next time Bro. C. W. Maier goes through here the wind would blow so hard that he would have to run about half a mile after his hat, then he might stop off. Still I am a little more fortunate than some of my brothers, as I caught him flying through here one trip, but I was going on the same train and could not hold him. Bro. Vice Grand, we are laying for you, and you may depend upon it that you will have to put up a fight if you get through here without staying at least twelve hours.

With the weather man and the engines I tell you the boys are getting their money's worth. There has been a change made in roundhouse and road officials on the Wyoming Division, and we have a new master mechanic.

I wish the Magazine and its editor success, as the boys are all proud of it here. They rush to the postoffice like they were going to the pay-car when they see one of the boys has got his new Magazine.

* * *

LODGE 60—(*G. H. Brant, Philadelphia, Pa.*) I was surprised to see so many of our brothers at the lodge meeting March 7th, and to have Bro. Harrahan with us, and to hear that he is going to start in business. I hope all the brothers will try and give him a helping hand, although I am sorry to know that he is out of the service. We are glad to have Bro. Thompson with us at every meeting, and hope every lodge has a Secretary who never misses a meeting. We were glad to see Bros. Barker and Brady install seven new members into our lodge, and I am sure that all who were there enjoyed it very much. We all hope to see oue of our Vice Grand Masters in our lodge room soon, and hope that he will let us know in time so that most of the boys will be there. I hope that our goat will continue to have as much exercise as he has had in the past month.

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LODGE 18—(*J. F. Bushman, Slater, Mo.*) We are doing very well, considering the way the boys are working and who can not get to lodge as often as they would like to do. Our lodge is growing right along, and we have some good meetings.

Bro. W. E. Morrison has been promoted to the position of traveling fireman on the West Division, and the boys all like him, as he makes a good smoke artist with the scoop. Bro. M. L. Mooney is able to handle the scoop once more after the loss of two fingers on the right hand some time ago.

As our meetings are getting larger, we would be glad to have all the brothers call, and we extend a hearty welcome to all.

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J. P. B., SOUTHERN PACIFIC SYSTEM—(*S. W. Hilliard, Los Angeles, Cal.*) On September 5th, the Joint Protective Board of the Pacific System and Lines in Oregon, Southern Pacific Company, met at the Russ House, in the city of San Francisco, to settle the grievances which had accumulated during the year, which I am pleased to say were few in number, and to discuss the propositions of opening our agreement with the company, which had been ordered by the majority of the men on the system.

The Board consisted of 13 delegates, one each from Lodges 19, 58, 91, 193, 94, 97, 98, 139, 143, 260, 312, 542 and 607, representing every division on the System. From September 5th until October 12th was spent in formulating certain changes in our existing agreement with the company. On the 12th of October these changes were presented to Mr. Small, Superintendent of Motive Power, and Mr. Small replied that he would be glad to meet with the Committee at the expiration of thirty days, as per section 29 of our agreement. So the Board adjourned and each delegate returned to his home, and spent the thirty days working and talking with the members of his lodge regarding the changes contemplated.

On November 13th the Board reconvened in San Francisco, and received a letter from Mr. Small that he would appoint a meeting in a few days. This he did, and the battle was on fair. Oil is being used as a fuel here in California almost exclusively, and the first move on the part of the company was to inform us that it did not think a fireman should be paid as much for firing oil as a fuel as he was paid for coal. This was contrary to the feeling of every man on the system, as every man who has had any experience with oil knows that as the physical labor is decreased, so the mental labor and danger are increased. Besides, each fireman felt that as long as we were earning more money for the company, and at a smaller expense to the company, we certainly were entitled to compensation on a ratio of the amount we were instrumental in earning, and if the company could afford to pay certain wages on engines using coal as a fuel, and coal at the high price it is in California, it certainly could afford to pay the same wages for engines using oil as a fuel, when oil is as cheap as it is in California, the saving in fuel to the company when using oil being almost 50 per cent.

We argued along these lines until the 29th of January, 1903, when the company finally decided to allow the fuel question to cease to be an issue. So we then very soon arranged a wage schedule favorable and just to both parties, and adjourned. Too much praise can not be given to Mr. Small, Superintendent of Motive Power, and his two assistants, Mr. Sheedy and Mr. Heintzleman, for the kind and courteous manner with which they treated the Board at all of our conferences. Our new schedule took effect February 1st, and so far everything is going along nicely, and everyone is pleased at the results obtained.

The officers elected for the coming year were as follows: Bro. Albert Phillips of Lodge 58, Chairman; Bro. Harry Moore of Lodge 94, Vice Chairman; Bro. Samuel W. Hilliard of Lodge 97, Secretary and Treasurer. The Board of Trustees consists of Bros. Peters of Lodge 19, Ryan of Lodge 542, and that untiring Brotherhood worker, Samuel W. Burgess of Lodge 143. This meeting was conducted with Bro. Geo. F. Keith of Lodge 139 in the chair, and to him is due in no small measure the success of the meeting.

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LODGE 244—(*Scott B. Barnes, Pueblo, Col.*) 'Twas a beautiful day in early June or, perhaps, in November; I don't just remember. But, anyway, 'twas a pleasing breezy sort of day. I went by myself and joined the B. of L. F. All the sport I didn't see—but you know what they did to me. They made me dance and sing a song; I will try and tell you how we are getting along. We are flying our kite just now, with lots of new members, and are taking in from two to three every meeting night, and there's lots of material in sight. We

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have now about one hundred members, including seven engineers, with good prospects for more. What do you think of that?

Bro. Walter E. Herbert is back with us again, and he is pleased to see that we are doing so well. He informed us that at one time it was hard to get a quorum, but now our lodge rooms are always full. Our brothers all seem to be interested, and are working all they can to push things along. Our comedian, Bro. Bowker, makes it very interesting for us all, especially the new ones. Our Master, Bro. M. O. Davis, is always there with the goods, and has endeared himself to his colleagues and the brothers he represents by his courtesy, his oratory, and his great personal charms. We all appreciate his achievements and the work he has done. We also duly recognize the worthy and able manner in which Bro. Crooks, of the Grievance Committee, has conducted his work, and appreciate his long and illustrious services. Bro. John Fraise, John Fairchilds, Breedlove, Massey, as well as our other active members, have done good work. Thanks to them.

With compassion we read of so many catastrophies, and desire to extend our sympathy to all those who have been bereaved by the loss of their loved ones, for tomorrow we know not. Like a flash of the lightning, a break of the wave, man passes from life to his rest in the grave.

* * *

THE CHARITY BALL—(*A. Leo Kent, Detroit, Mich.*) The charity ball which was given in Detroit, January 6th, for the benefit of aged and disabled railroad men was a success in every way, and everyone who attended was loud in its praise. Thanks to Mr. Hamilton Carhartt and the Detroit Leather Specialty Co., our expenses were light. Mr. Carhartt shouldered the expense of the hall, which was the largest and best that could be secured, and the Detroit Leather Specialty Co. furnished the programs, which were gotten up in a very neat manner. Mr. Carhartt also speaks of endowing a bed at the Home as soon as arrangements can be made. May he be blessed.

The amounts raised by the charity ball is between $475 and $500, and then there are some we have not yet heard from. I would like to say that these balls, given jointly by the different railroad organizations, have a tendency to promote a better feeling among the men, and I believe that an effort should be made in the different sections of the country to work together for the Home, as more can be accomplished in that way than can be done by individual work.

* * Official * *

Addresses Wanted.

Requests have reached this office to publish notices inquiring for the present addresses, or any information concerning the following persons. Information should be sent to the person specified in notice:

Michael Cavins.—Last heard from about three years ago. Was working for the Rocky Mountain Bell Telephone Co., at Butte City, Mont. Anyone knowing his present whereabouts kindly address W. Cavins, Oelwein, Iowa.

Henry A. Fisher.—Is a member of Lodge 167, B. of L. F., at Portland, Ore. Has been an engineer in Mexico, and was a fireman as well as an engineer also on the O. R. & N. Was last seen at Portland about four months ago. If he will correspond with Bro. Frank J. Fisher, of Cleone, Ore., he will learn something of interest to himself. Anyone knowing anything about him kindly send information to Frank J. Fisher, Cleone, Ore., or to James Rogers, 738 Albina avenue, Station B, Portland, Ore.

Al Hirst.—Last heard from at Ranier, Washington. Was at Fresno on the A., T. & S. F. Ry. for several years. This (February 16, 1903) is his 34th birthday, and his mother is very anxious about him. Kindly send any information to Emily Hirst, Cloverdale, Cal.

Fred Houk.—Left home December 28, 1902. Have not heard from him since. The last place he worked was on the Chicago, St. Paul, Minneapolis and Omaha Railroad. Said he was going to St. Louis, Mo., but have heard that he went south. Don't know where or what part. Would like very much to know something about him. He has a light complexion, blue eyes and weighs about 190 pounds. He is a fireman and I am very sure he is in the south. Is a member of Lodge 57 B. of L. F. Any information as to his whereabouts will be gratefully re-

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ceived by his wife, Mrs. Frederick Houk, 759 Tremont street, Boston, Mass.

Hugh Anderson.—Formerly worked out of Denver. Has been missing since November, 1902. Was at work at Mena, Ark. Received a letter from him November 16th, from Kansas City, Mo., where he was trying to get work, and he stated that if he did not get work there he expected to go to Lincoln, Neb., Omaha or Chicago. Have heard nothing from him since. He is not a member of the B. of L. F., but was until about two years ago. I am left with three little children to care for and am anxious to hear from him. Any information as to his present whereabouts will be thankfully received by his wife, Mrs. Mary Anderson, Brighton, Mich.

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The Home Account.

The following donations were received at the Home for Aged and Disabled Railway Employes for the month of February, 1903:

B. of L. F. Lodges—10, $5; 78, $5; 138, $5; 163, $11.50; 321, $10; 168, $6; 334, $10; 373, $5; 490, 5; total	$62 50
L. S. to B. of L. F. Lodges—11, $5; 94, $5; total	10 00
O. R. C. Divisions	674 05
B. of R. T. Lodges	333 85
B. of L. E. Divisions	320 50
L. A. to O. R. C. Divisions	85 65
L. A. to B. of R. T. Lodges	47 00
G. I. A. to B. of L. E. Divisions.	58 50
T. F. C., Cleveland, Ohio	1 00
Interest on moneys deposited in bank by B. of L. F. of Cook County, from ball, January, 1902	6 36
Funeral expense of Bro. James M. Driscoll, member of 163, B. of L. F., paid by his wife	62 00
Grand total	$1,661 41

Miscellaneous.—Mrs. C. A. Bradley, 12 sheets; from Tucson, Ariz., no name, 8 sheets, 16 pillow slips, 1 quilt; L. A. to O. R. C. 117, 12 sheets, 12 pillow slips; L. A. to O. R. C. 49, 6 sheets; L. A. to O. R. C. 26, 6 sheets; G. I. A. to B. of L. E. 246, 12 sheets; G. I. A. to B. of L. E. 238, 12 sheets; G. I. A. to B. of L. E. 149, 6 sheets; G. I. A. to B. of L. E. 4, 6 sheets, 12 pillow slips; L. A. to B. of R. T. 68, 5 sheets, 6 pillow slips, 8 towels; L. A. to B. of R. T. 176, 3 sheets; L. A. to B. of R. T. 180, 6 sheets; wives of members, B. of L. E. 343, box of canned fruits.

At present time there are as inmates of the Home, 11 members of the B. of L. E., 4 members of the B. of R. T., 4 members of the O. R. C., and 3 members of the B. of L. F.

Respectfully submitted,
MRS. T. B. WATSON,
Sec. and Treas. R. R. M. H.

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Acknowledgments.

The following persons desire to acknowledge receipt of payment of claims, and to express their gratitude to the Brotherhood of Locomotive Firemen as an organization, and to the individual members for kindnesses and courtesies extended:

Mrs. C. W. King and children, Baraboo, Wis.

Mrs. Mary E. Dye, Rochester, ———.

Wm. C. Harrington, Moberly, Mo.

Mrs. Alice Murray, ———.

Mrs. Minnie O. Ward, New Lisbon, Wis.

J. P. Devereaux, Syracuse, N. Y.

Mrs. Elsie Beedle, Indianapolis, Ind.

Mrs. Bertha Davis, New Lewisville, Ark.

Mrs. Meta Lyth and family, Bellville, Texas.

Mrs. Mary E. Danford, Liberty Center, Ohio.

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Balls and Entertainments.

Courteous invitations have been received at this office to attend the following balls and entertainments. The Grand Lodge force returns thanks and wish all an enjoyable and successful time:

Lodge 123.—Seventeenth annual ball, at Washington Hall, 18th and Harney streets, Omaha, Neb., Monday evening, February 23, 1903.

Lodge 344.—Thirteenth annual ball, at Armory Hall, Trinidad, Col., Friday, February 20, 1903.

Lodge 178.—Fourteenth annual ball, at Christensen's New Hall, Salt Lake City, Utah, Thursday, February 19, 1903.

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Beneficiary Statement

OFFICE OF GRAND SECRETARY AND TREASURER,
PEORIA, ILL., March 1, 1903.

TO SUBORDINATE LODGES:

The following is a statement of receipts in the Beneficiary Department for the month of February, 1903:

RECEIPTS.

Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.
1	400 25	63		125	61 25	187	88 00	249	169 00	311		373	103 75	435	70 00	497	115 75	559			
2	46 00	64	197 25	126	111 75	188	253 25	250	164 75	312	113 00	374	137 75	436	207 25	498	77 75	560	50 50		
3	653 50	65	173 00	127	150 75	189	176 00	251	266 75	313	67 75	375		437	27 75	499	39 50	561	53 25		
4		66	125 75	128	74 00	190	17 50	252	260 00	314		376	74 75	438	74 50	500	80 50	562	104 75		
5	314 25	67	144 25	129	211 25	191		253	167 50	315	201 50	377	168 50	439	44 25	501	107 00	563			
6		68		130	309 75	192	201 00	254	124 50	316	216 25	378		440	150 00	502	172 50	564	66 25		
7	122 25	69	66 25	131	54 00	193	71 50	255	81 00	317	64 75	379	208 50	441		503	83 50	565			
8	373 25	70	115 25	132	113 00	194	231 00	256		318		380	26 00	442	65 50	504		566			
9	223 00	71	208 00	133		195	92 25	257	96 50	319	152 00	381	134 25	443	113 50	505	64 75	567	136 50		
10	630 50	72	361 50	134	105 50	196	47 00	258		320	73 75	382		444	161 00	506	76 75	568	110 75		
11	195 25	73	246 75	135	150 75	197	106 75	259		321	56 50	383	130 75	445	78 00	507	39 25	569	75 50		
12	298 00	74		136	92 50	198	183 00	260	113 50	322	115 75	384		446		508	193 50	570	46 75		
13	392 25	75	438 00	137	79 50	199	111 00	261		323	82 00	385	79 00	447	51 50	509	51 00	571	69 50		
14	300 25	76	31 50	138	295 25	200		262	174 75	324		386	26 00	448	473 75	510		572	32 75		
15	112 75	77	336 00	139	230 75	201		263		325		387	48 50	449	185 00	511		573	49 25		
16	303 50	78		140	327 50	202	157 50	264		326	229 75	388	205 50	450	119 00	512	84 00	574	66 75		
17	210 00	79	47 50	141	396 50	203	215 25	265		327		389		451	88 25	513	117 75	575	51 75		
18	373 00	80		142	224 75	204	133 50	266	161 00	328		390	150 00	452		514	82 25	576	61 00		
19	222 25	81	163 25	143	221 00	205	107 50	267	156 00	329		391	152 50	453		515		577	39 50		
20	38 00	82	226 25	144		206	55 00	268	34 50	330	183 00	392	148 25	454		516		578			
21	135 75	83	201 25	145		207	209 00	269	169 25	331	51 25	393	136 00	455	90 50	517	71 00	579	50 75		
22	69 50	84		146	336 75	208		270	114 50	332		394	20 25	456	86 25	518	31 25	580			
23	8: 00	85	171 50	147	165 00	209	151 25	271		333	247 00	395	72 25	457	136 75	519	115 50	581			
24	170 00	86	194 75	148		210	59 75	272	49 50	334	194 75	396		458	35 00	520	43 75	582	128 00		
25	311 25	87		149	716 00	211	183 50	273	161 00	335	104 25	397	45 00	459	60 00	521	67 00	583	48 50		
26	203 50	88	121 00	150		212	123 50	274		336	74 75	398	75 75	460	79 75	522	287 75	584	49 50		
27	203 25	89	68 00	151	89 75	213		275		337	201 50	399	47 00	461	195 00	523	84 25	585	90 50		
28	156 25	90		152	149 00	214	235 25	276	151 75	338	150 00	400		462	119 25	524	15 00	586			
29	93 25	91	400 00	153	134 50	215	276 00	277	95 00	339	46 25	401		463	137 50	525		587	111 75		
30	137 25	92	99 75	154	102 00	216	82 00	278	23 50	340	136 00	402		464		526		588	34 00		
31	91 25	93		155		217		279		341		403		465	221 25	527	96 25	589	64 75		
32	..	94	264 25	156	196 75	218	207 75	280		342		404	72 75	466	103 00	528	106 50	590	132 50		
33	105 25	95	36 50	157	63 50	219	189 00	281	184 50	343		405		467	82 25	529		591			
34	254 00	96	141 25	158	75 50	220	439 00	282	24 75	344		406		468	39 50	530		592	47 00		
35		97	182 50	159	138 00	221	165 25	283	100 75	345	154 75	407	97 25	469	55 00	531	90 75	593	33 00		
36	141 00	98	265 75	160	118 75	222	157 25	284	401 50	346	35 50	408	156 00	470		532	48 50	594	92 25		
37		99	527 75	161	25 00	223		285	275 25	347	87 50	409	127 00	471		533		595	54 25		
38		100		162	326 25	224	49 50	286	307 50	348		410		472	182 75	534	175 00	596	101 25		
39	119 25	101		163	138 50	225	47 75	287	510 75	349		411	145 00	473	65 00	535	63 00	597	58 50		
40	250 00	102	101 50	164	97 25	226	208 25	288		350	167 00	412	124 75	474	107 25	536	48 25	598	86 50		
41		103		165	58 00	227	63 00	289	141 25	351	29 50	413		475	113 00	537		599	33 25		
42	30 00	104	131 25	166	249 50	228	338 50	290	94 75	352	104 50	414		476	52 00	538	115 25	600	60 25		
43	74 50	105	66 50	167	108 00	229	266 75	291	116 50	353		415	204 50	477	143 50	539	80 00	601	98 00		
44	174 75	106	72 00	168	95 50	230	564 00	292	49 25	354	177 25	416	177 75	478	177 25	540	141 50	602	100 50		
45	338 00	107	198 25	169	331 50	231	336 00	293	107 50	355	318 00	417	86 75	479	113 25	541	73 75	603	33 00		
46	56 25	108	140 75	170	89 75	232	159 00	294	97 00	356	152 75	418	392 00	480	38 00	542		604	28 75		
47	...	109	187 25	171	78 00	233	146 00	295	212 50	357	63 75	419	88 00	481	108 50	543	210 00	605			
48	277 25	110		172		234	87 75	296	172 50	358		420	102 50	482	134 25	544		606	40 50		
49		111		173		235	352 25	297	144 75	359	62 50	421	56 75	483	64 00	545	71 00	607	48 00		
50	38 00	112	43 25	174	829 00	236	353 75	298		360	124 50	422	66 75	484	130 00	546	65 50	608	42 00		
51	154 25	113	189 50	175		237	396 00	299	116 50	361		423	50 00	485	701 25	547	42 50	609	46 25		
52		114	41 00	176		238	201 75	300	157 25	362	48 00	424	89 75	486		548	70 75	610	31 75		
53	96 75	115	38 50	177	122 50	239		301	95 00	363		425	81 00	487	18 25	549	71 50	611	42 75		
54	185 00	116		178	262 25	240	246 50	302	220 00	364		426	176 25	488	67 00	550	46 75	612	65 50		
55	46 00	117	102 75	179	27 75	241	228 00	303	89 50	365		427		489	121 50	551		613	45 25		
56	105 00	118	57 75	180	12 00	242	212 00	304	154 00	366	58 75	428	59 50	490	149 00	552	94 50	614	148 75		
57	516 75	119	89 00	181	34 25	243	91 00	305	..	367	92 00	429	125 50	491	39 50	553	52 00	615	74 75		
58		120	155 25	182		244	113 50	306	233 75	368	101 25	430	91 00	492	152 75	554	64 25	616	41 00		
59	340 25	121	281 50	183	178 25	245	119 50	307	133 50	369	106 00	431	116 75	493	88 00	555	36 00	617			
60		122	59 25	184		246		308		370	24 50	432	220 25	494	102 75	556	54 75	618	27 00		
61	123 25	123	167 25	185		247		309	293 75	371		433	67 00	495		557		619	48 00		
62	79 75	124	152 25	186		248		310	162 25	372	119 50	434		496		558		620			

Received during month of February.....$66,365.50

Disbursed during month of February, account Beneficiary Claims..... { 43 $1,500 $64,500 / 1 1,000 1,000 / 1 500 500 }$66,000.00

Respectfully submitted,

F. P. Sargent

G. S. and T.

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Beneficiary Assessment Notice No. 116.

To the Treasurers of Subordinate Lodges: PEORIA, ILL., April 1, 1903.

Dear Sirs and Brothers—You are hereby notified of the following deaths and disabilities:

Claim No.	NAMES.	Lodge No.	Death or Disability.	Date.	Cause.	Am't.	When Paid.
2308	John Lehr	24	Death	Sept. 25, 1902	Suicide	$500	Jan. 12, 1903
2309	F. F. Gardner	153	"	Oct. 3, "	Hemorrhage of lungs	1,000	" 12, "
2310	L. W. Ashcroft	148	"	" 6, "	Derailing of engine	1,500	" 12, "
2311	J. M. Conway	324	"	" 6, "	Railroad collision	1,500	" 12, "
2312	Harold C. Vaughn	404	Disability.	Sept. 30, "	Amputation of right leg	1,500	" 15, "
2313	M. W. Anderson	182	"	Oct. 9, "	Amputation right arm	1,500	" 15, "
2314	B. E. McCauley	70	"	" 12, "	Amputation of right leg	1,500	" 15, "
2315	Anthony Merganz	232	Death	" 15, "	Falling from engine	1,500	" 15, "
2316	Charles Simmons	149	"	" 18, "	Derailing of engine	1,500	" 15, "
2317	Hugh Moore	221	"	" 19, "	Railroad collision	1,500	" 20, "
2318	Warren E. Kiger	220	"	" 20, "	Railroad accident	1,500	" 20, "
2319	W. H. Wetzel	174	"	" 20, "	Railroad accident	1,500	" 20, "
2320	William Crossley	69	"	" 21, "	Typhoid fever	1,500	" 20, "
2321	Harry B. Oorl	287	"	" 22, "	Railroad accident	1,500	" 20, "
2322	Jerry Connelly	122	"	" 25, "	Boiler explosion	1,500	" 20, "
2323	Charles H. Torpey	33	"	" 29, "	Heart trouble	1,500	" 22, "
2324	Orville W. Hunt	432	"	Nov. 2, "	Boiler explosion	500	" 22, "
2325	George I. Brigner	599	"	" 4, "	Hepotic abscess	1,000	" 22, "
2326	F. M. Thornton	424	"	" 5, "	Scalds	1,500	" 22, "
2327	C. W. King	26	"	" 6, "	Run over by train	1,500	" 22, "
2328	Charles Anthony	10	Disability.	" 4, "	Amputation of right arm	1,500	" 22, "
2329	Wm. C. Harrington	54	"	Oct. 30, "	Amputation of right leg	1,500	" 22, "
2330	J. J. Sheehan	472	"	" 22, "	Consumption	1,500	" 12, "
2331	John A. Joseph	231	"	Nov. 6, "	Consumption	1,500	" 22, "
2332	L. W. Flanagan	334	"	" 10, "	Paralysis	1,500	" 28, "
2333	John W. Swick	11	"	" 17, "	Amputation of left leg	1,500	" 28, "
2334	Daniel I. Brown	418	"	" 20, "	Amputation of left leg	1,500	" 28, "
2335	J. M. Strinsky	322	Death	" 8, "	Enterie fever	1,500	" 28, "
2336	Charles E. Ward	575	"	" 8, "	Appendicitis	1,500	" 28, "
2337	Sidney P. Mead	10	"	" 9, "	Smallpox	1,500	" 28, "
2338	George Cutter	3	"	" 13, "	Apoplexy	1,500	" 28, "
2339	W. J. Weller	213	"	" 16, "	Pneumonia	1,500	" 28, "
2340	R. L. Klinefelter	319	"	" 17, "	Railroad collision	500	" 28, "
2341	Joseph R. Heitzman	349	"	" 18, "	Scalded	1,500	" 28, "
2342	J. J. Hogan	334	"	" 23, "	Consumption	1,500	" 28, "
2343	Ezra G. Weaver	87	"	" 24, "	Scalds	1,500	" 28, "
2344	R. W. Linkenhoker	182	"	" 26, "	Railroad accident	1,500	" 29, "
2345	Henry Foster	143	"	" 27, "	Railroad collision	1,000	" 29, "
2346	Henry W. Haddock	32	"	" 27, "	Typhoid fever	1,500	" 29, "
2347	Henry W. Davis	143	"	" 27, "	Railroad collision	1,000	" 29, "
2348	John Rowe	150	"	" 28, "	Septicaemia	1,500	" 29, "
2349	Burton S. Baker	365	"	Dec. 7, "	Railroad accident	1,500	" 29, "
2350	Louis R. Green	120	"	" 8, "	Bright's disease	1,500	" 29, "
2351	C. E. Wrinkle	581	"	Oct. 26, 1901	Railroad collision	1,500	Mar. 9, "
2352	John R. Williams	113	"	May 20, 1902	Murdered	1,500	Feb. 6, "
2353	W. G. Brown	341	"	Aug. 22, "	Drowned	1,500	" 6, "
2354	Edward McGuiness	237	Disability.	Sept. 5, "	Bright's disease	1,500	" 6, "
2355	James D. Swanton	136	Death	" 21, "	Railroad collision	1,500	" 6, "
2356	Wm. C. Lyth	612	"	" 30, "	Railroad collision	1,500	" 6, "
2357	Harold B. Thomes	485	"	Oct. 25, "	Struck by train	1,500	" 6, "
2358	Joshua D. Allen	49	"	" 26, "	Insanity	1,500	" 6, "
2359	Mansfield S. Nicholson	302	"	Nov. 3, "	Railroad accident	1,500	" 6, "
2360	Amiel E. Pfleeger	14	"	" 5, "	Falling from engine	1,500	" 6, "
2361	John W. Riffe	45	"	" 14, "	Malarial fever	1,500	" 6, "
2362	W. J. Butler	515	"	" 14, "	Scalded	1,500	" 6, "
2363	Adelbert M. Dye	99	"	" 19, "	Railroad accident	1,500	" 6, "
2364	J. H. Gray	486	Disability.	Oct. 2, "	Amputation of right leg	1,500	" 6, "
2365	W. H. Heath	6	"	Nov. 3, "	Consumption	1,500	" 6, "
2366	James P. Deveraux	120	"	" 19, "	Consumption	1,500	" 18, "
2367	John W. Huston	344	"	" 19, "	Amputation of right leg	1,500	" 18, "
2368	Raymond Franklin	148	Death	" 22, "	Derailing of engine	1,500	" 18, "
2369	Charlie C. Beedle	475	"	Dec. 2, "	Railroad accident	1,500	" 18, "
2370	James O. Hills	356	"	" 8, "	Crushed between cars	1,500	" 18, "
2371	James J. Sharkey	60	"	" 9, "	Hemorrhage	1,500	" 18, "
2372	John Davidson	117	"	" 10, "	Asthma	1,500	" 18, "
2373	James W. McCabe	296	"	" 10, "	Fracture of skull	1,500	" 18, "
2374	George W. Wells	382	"	" 12, "	Derailing of engine	1,500	" 18, "
2375	Samuel N. Keyser	236	"	" 13, "	Railroad accident	1,500	" 27, "
2376	George E. Woskie	65	"	" 16, "	Railroad collision	1,500	" 27, "
2377	Henry Dee	147	"	" 16, "	Railroad collision	1,500	" 27, "
2378	John M. Burr	223	"	" 16, "	Railroad accident	1,500	" 27, "
2379	Peter Nash	243	"	" 16, "	Enemia	1,500	" 27, "
2380	John Pistner	338	"	" 17, "	Crushed between cars	1,500	" 27, "
2381	E. W. Payne	169	Disability.	" 19, "	Paralysis	1,500	" 27, "
2382	I. C. Allen	169	"	" 19, "	Paralysis	1,500	" 27, "
2383	Emory Denis	463	"	" 20, "	Locomotor ataxia	1,500	" 27, "
2384	Samuel G. Higgins	455	Death	" 22, "	Jumping from engine	1,500	" 27, "
2385	Michael D. Foley	269	"	" 22, "	Crushed bet. engine and car	1,500	" 27, "
2386	Edward Adams	78	"	" 26, "	Railroad accident	1,500	" 27, "
2387	T. P. Padden	319	"	" 26, "	Septicaemia	500	" 27, "
2388	Michael A. Boyle	448	"	" 27, "	Derailing of engine	1,500	" 27, "
2389	Robert H. Stith	502	"	" 27, "	Railroad collision	1,500	" 27, "
2390	Wm. M. Danford	302	"	" 30, "	Typhoid fever	1,500	" 27, "
2391	O. L. Meldrum	44	"	Jan. 9, 1903	Railroad accident	1,500	" 27, "
2392	James M. Crook	341	"	Sept. 1, 1902	Derailing of engine	1,000	" 27, "
2393	A. J. Cummings	77	Disability.	Dec. 3, "	Amputation of left leg	1,500	" 27, "
2394	Michael Devaney	15	Death	" 12, "	Railroad collision	1,500	" 27, "
2395	Ambroise Mouton	267	"	" 17, "	Railroad accident	1,500	" 27, "

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Assessments for death and disability claims are hereby levied as follows: For each member whose name appears on the rolls of membership on April 1, 1903, (also for all members having taken a withdrawal or transfer card after April 1st, and for all members who died or were totally disabled since that date), carrying a Beneficiary Certificate of THREE THOUSAND ($3 000.00) DOLLARS you are required to forward the sum of FOUR DOLLARS AND TWENTY-FIVE CENTS ($4.25); for those carrying a Certificate of TWO THOUSAND ($2,000.00) DOLLARS you are required to forward the sum of TWO DOLLARS AND SEVENTY FIVE CENTS ($2.75); for those carrying a Certificate of FIFTEEN HUNDRED ($1,500.00) DOLLARS, you are required to forward the sum of TWO ($2.00) DOLLARS. For those carrying a Certificate of ONE THOUSAND ($1,000.00) DOLLARS you are required to forward the sum of ONE DOLLAR AND FIFTY ($1.50) CENTS, and for each member carrying a Certificate of FIVE HUNDRED ($500.00) DOLLARS you are required to forward the sum of SEVENTY-FIVE ($0.75) CENTS. Said remittances to reach the Grand Lodge not later than April 20, 1903, as provided in Section 61 of the Constitution. Yours fraternally,

G. S. and T.

SPECIAL NOTICE.—All remittances must be made by BANK DRAFT, MONEY ORDER, OR EXPRESS ORDER. Members initiated after April 1st, are not liable for this assessment. Treasurers are required to forward $2.00 Grand Dues for each new member (not yet remitted for) initiated on or before April 1st.

It will be noted in the right hand column that the above claims are all paid and the date of payment given.

I Want to be a Brakeman

I want to be a brakeman,
Dog gone!
Legs hangin' over the edge of a flat car,
Train goin' 'bout twenty-five mil'n hour,
Kickin' the dog fennel 'long the track—
That's what a brakeman does.

I want to be a brakeman,
I jing!
Makin' the boys git off the platform,
Cussin' the drayman if the skids is lost,
Hollers, "Back 'er a length," and the engineer has to—
That's a brakeman for ye!

No conductor for me, just a brakeman,
By hen!
Can make a couplin' on dead run,
Has spring-bottom pants 'n' braid on his clothes,
Carries a lantern at night 'n' cap over his ears—
That's a brakeman, I'll tell ye!

I want to be a brakeman,
Geeminently!
Stand in with the agents and op'rators,
Gits to Peru every night 'n' sees the show,
Knows the numbers of the trains, chaws terbacker—
He's a regular one, you bet!

'N' I want to be a head brakeman,
Gol-lee!
Twistin' 'er hard, smoke rollin' round ye,
Country people stoppin' work to look,
Girls wavin' at ye all the way to Peru;
I'll be one, too, some day.

—Chicago Record.

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Charity.

The broad principle of our Order, that of charity, does not alone consist of giving material comfort, but in our thoughts we should always be charitable to those with whom we come in contact. A kind word has often influenced the future of those who had begun to feel that life had but little happiness for them. Often it has been the turning point in the career of many. How many loving hearts hunger for a kind word! There are times when a kind word of encouragement from the one we love is as grateful as is the spring in the desert to the traveler. Let us not be too quick to condemn. Before passing judgment, let us ask ourselves, what would I have done under similar circumstances? Do not let the idle tongue of gossip influence our feelings. Let us remember that it is often the best fruit that the birds pluck. It is unfortunately true that a breath of slander will travel with the speed of light, while words of praise and commendation sometimes take a long time. Therefore, my sisters, when we have occasion to criticise others, let us withhold judgment until we have heard both sides, and then let us practice that charity which we would expect to receive from others. Let us be absolutely fair in our dealings with all. Avoid doing those things which you know will give pain. Be a true and loyal member of the Society; follow its practices and teachings in your intercourse with each other, and should the time ever come that you are to be judged, then you will know that absolute justice will be done you.

MRS. GEORGIE M. SARGENT.
Grand President.

The Office of the Grand Secretary and Treasurer.

Returning from Omaha, where I had been attending the State convention of the N. T. L., I stopped over one train at Boone, Iowa, where is located the office of the Grand Secretary and Treasurer of the Ladies' Society. I was anxious to meet Sister DuBois, as well as to see some of the methods now employed in the office under her personal supervision. I had pictured a small, stuffy room, with a desk and chair, and possibly a table, littered with letters, statements, constitutions and the usual supplies, with the absence of anything like order, and a little, fidgety woman in charge, who, when called upon, would soon freeze me out, so that I would make my visit brief, and I would depart with little, if any more, knowledge of the Society than when I came.

After leaving the train, I walked down the main street of as busy a town as can be seen in the West. Inspection of the store windows disclosed the fact that in Boone are to be found large mercantile establishments, where are displayed the choicest and latest styles. The buildings are modern and thoroughly up-to-date. In fact, I soon discovered that Boone was not an out-of-the-way country village, but a large, thriving town, with every facility for business and pleasure.

On inquiry, I was pointed out a handsome brick building, and was informed that up one flight I would find the office of the Grand Secretary and Treasurer, Sister DuBois. I mounted the stairs and rapped upon the door indicated as the

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"office." A pleasant answer, "Come right in," gave me courage, and, opening the door, much to my surprise, I discovered the appearance of a most complete business office, with everything in order, and one of the busiest sisters in charge, who, from the moment I entered, made me welcome, and in a very short time was engaged in giving me information about the Ladies' Society. The register of membership was opened for my inspection. I was naturally interested in my home lodge and in my own record. I found that once I had been delinquent, which made me feel chagrined, although I knew it was a truthful record of my membership. I was then shown how moneys were received from the different lodges. The filing system was then explained, where every letter is carefully kept and is always accessible. Bills properly approved by the Grand President are paid by check and filed in their regular order. In fact, there was evidence on every hand that the office of the Grand Secretary and Treasurer is conducted in a businesslike way, and in Sister DuBois we have a business woman, whose thorough knowledge of financial transactions, gained while engaged in the banking business, specially fits her for the responsible duties of the office. The Ladies' Society can well feel proud of this office as managed by Sister DuBois. All money is deposited in the name of the Ladies' Society.

Sister DuBois explained to me some of the difficulties she had to contend with on account of the carelessness of the local officers in filling out statements, making reports of admissions, withdrawals, transfers, etc., as well as answering correspondence. I saw evidence of my own shortcomings as secretary of my lodge. I had supposed that I was a model officer, but I had to admit that I had much to learn, and I assured Sister DuBois that I would profit by her instructions.

After spending a few hours in the office, I was then shown the supply room adjoining. Here, in perfect system, are arranged the supplies, from whence they are shipped.

I was proud of the office of the Grand Secretary and Treasurer, as it represents to a stranger the business importance of the Ladies' Society.

Sister DuBois had but recently received the balance due on the account of the late Grand Secretary and Treasurer and the accounting of the Board of Grand Trustees made at Albany, N. Y. The full amount is now on deposit to the credit of the Ladies' Society. When I received this information I recalled reading the report of the Grand Counselor as printed in the convention proceedings.

We can now feel that the office of Grand Secretary and Treasurer is in the hands of a sister who is strictly business, and I predict that when the Grand Trustees next examine the books they will have no difficulty in making a report which will stand the closest scrutiny.

Each of us, my sisters, can be of great help to our Grand Secretary and Treasurer by trying to do our part at home, as the laws require. I have determined to be more careful in my work as Secretary and avoid causing the office unnecessary annoyance. If all of our sisters who hold office and who correspond with Sister DuBois could see as I have what she has to contend with and how patiently she toils and with what care order is brought out of chaos, I am sure all will try as I shall to improve. I was really ashamed of some of the mistakes that I made, especially as I had a full knowledge of the law.

While at Boone I saw the best evidence of the growth and prosperity of the Society, and we can all feel encouraged and be hopeful.

"LATIN."

Walnut Hills, Ill.

* * *

Duties of Members.

A member's duty to the Society is not completed as soon as she is initiated.

She obligates herself to attend lodge meetings regularly; only sickness or some unavoidable circumstance can excuse her. She violates this obligation when she attends only when it is convenient for her to do so.

She promises to do all she can to promote the interest and growth of the Order. Does she keep her promise if from that day forward she never thinks to ask a friend to join her Society?

Some sisters have all kinds of excuses to make when asked if they attend lodge regularly—home duties, etc. Few of our members have no home duties, but, certainly, we *can* manage our work and attend a meeting at least once a month, so that we may know what is being done in our lodge room by those members who have kindly consented to fill the different offices.

How encouraging it is to the President of the lodge to see a good attendance at each meeting.

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Suppose each one of us should say—"There is no need for me to go to the meeting this afternoon or this evening;" how long would our Society last and how soon would we lose all that we have paid in?

No sister who attends meeting regularly and pays her dues and assessments is ever suspended or expelled for any cause.

Our dues are payable every quarter in advance, July 1st, October 1st, January 1st and April 1st. Try and be prompt in sending them in, so that the Collector may not be obliged to notify you. Can you not be of that much assistance to your lodge?

There is a certain time each quarter to pay dues, just as there is a certain time for those who live in rented houses to pay rent. It is a custom to lay aside the amount of our rent, our gas bill and other bills each month and we pay them without feeling it a hardship. Now let us lay aside each month our dues so that we can pay them as soon as they are due.

The member, who will make this a rule, will not only save herself, the Collector of her lodge, and its members, much trouble, but will also save the lodge much expense. Pay up promptly. Don't allow yourself to get behind.

The past history of our Society is a guarantee of what it will do in the future, if your faith in it is supplemented by a regular attendance at lodge meetings and a prompt payment of dues and assessments.

MRS. GEORGE GODING,
President 146.

♣ ♣ ♣

Home.

The home is the foundation stone of society and of all government. If we do not preserve its sanctity all law will suffer.

Home is where the mother is and the world looks to her to shape the destiny of those of her own household.

Our sympathy goes out to the many men who are far away from home. How anxious they are to return and be with mother once more; but, alas! there are others, less fortunate than they, whose only hope is—to do what is right in this life so that they may be able to be with that precious one, called mother, in a better place hereafter.

A great and good man said: "Blessed is the man whose infancy has been watched over, kindled, penetrated, by the eye of a tender and holy mother. That glance has a magical power over the soul of the child; it beams forth sweetness and life; and as the sun's rays mature the fruits of the earth and sweeten them by the communication of its own substance, so does the mother deposit in the soul of the child the sacred character of love."

The love of a child in a home is something that makes life worth living, feeble as it is, compared with a mother's love.

Dreary must be the home where the heart is not made glad by the prattle of little children. James Whitcomb Riley writes of one "who mourned because no child was his, that death could take it had the Divine will seen so fit to do."

"Let me come in where you sit weeping; aye,
Let me who has not any child to die,
Weep with you for the little one whose love
I have known nothing of.

"The little arms that slowly, slowly loosed
Their pressure round your neck! the hands you used
To kiss—such arms—such hands I never knew;
May I not weep with you.

"Fain would I be of service—say something
Between the tears that would be comforting—
But, oh! so sadder than yourselves am I,
Who have no little child to die."

No greater responsibility was ever given to human beings than the raising of children. That it is a task can not be denied. The greater part of the burden falls upon the wife and mother and much credit does she deserve, when she does her part well.

The mother should be in touch with her children all the time. Were it possible to avoid it she should never become a bread winner. Instances are not rare where mothers are compelled to leave their little ones with strangers while they go out and help the father to bring home money to keep the wolf from the door. Such conditions, arising from whatever cause, are to be deplored and ought not to exist. The wife and mother who looks after the household affairs, and who takes proper care of all that comes within her charge, does her share over and over again and should not be obliged to help make the living.

A home can not be happy with the mother away. Take from the home happiness and life no longer hath a charm.

CHARLES W. MAIER,
Third Vice Grand Master B. of L. F.

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In Memoriam.

The members of L. S. 50, of Shreveport, La., extend heartfelt sympathy to Bro. Kelly Logsdon because of the death of his beloved wife. There is a vacant seat in our lodge room, but she has become a worthy member of that Grand Lodge above.

The sisters of Flower of the Desert Lodge 5 sympathize deeply with Sister Arkeills, whose husband, Bro. Al. Arkeills, died from injuries received by his engine going through an open switch. The beautiful floral offerings from the B. of L. F. and L. S., also the number of brothers and sisters who went to Los Angeles to attend the funeral, testify that he was a well-beloved brother.

The charter of Addison Lodge 75 has been draped for the first time. The members extend their deepest sympathy to Sister Rose Harper, whose husband, Bro. Fred Harper, passed to the great beyond January 19th.

We know when moons shall wane,
When summer birds shall cross the sea,
When autumn's hue shall tinge the golden grain,
But who shall teach us when to look for thee.

Annual Union Meeting.

The eighth annual meeting of the Ladies' Societies, B. of L. F., of the State of Kansas, will be held at Chanute, Kan., in May. The exact date will be published in the Magazine later.

We are looking forward to a grand meeting. We hope the sisters of other societies will turn out and help us make this, our eighth union meeting, a grand success—for "in union there is strength."

Any information in regard to this meeting will be gladly furnished by Mae L. Lawton, State Secretary, Box 248, Chanute, Kan.

Notes.

The world's need today is of kind women and men. Kindness is the child of love, and its pedigree goes back to God.—Ella Wheeler Wilcox.

"We can not believe too strongly in our own society and in our ability to respond to every legal call made upon it."

Presidents, do you call your lodge meetings to order promptly, at the specified time? If you do not, you can not close your meetings early, and your members will not come out.

Your Editress does not live in Indianapolis. She is the wife of your Grand Medical Examiner, and, to date, she lives with him at 103 Seventh street, Peoria, Ill. By sending all communications for publication in the L. D. to that address you will save Editor Carter the trouble and expense of forwarding the same.

Your attention is called to the letter published in this issue from L. S. 76. Nine members initiated during the last quarter and the good work still going on.

L. S. 27 also has a good showing, six initiated at one meeting.

"All that other folks can do, why with patience may not you?"

Every true woman knows that nothing will take the place in her heart or interest which her home and her family takes.

The new prophets are worrying lest the devotion to club life should wean women away from home. If a woman is so organized that love of excitement, desire for office, eagerness to find constant excitement outside of her home, control her actions, she will find dissipation somewhere, and lucky for her family that she stumbles accidentally into a good society She will learn to respect the things which she hitherto slighted, and home and its duties will assume new and more important proportions.—Club Woman.

The sister who comes to lodge with a chip on her shoulder certainly shows poor taste in her selection of ornamentation. She might have made a much happier choice among this season's dainty little capes, fetching bows and killing epaulettes.

The little prayer was said,
And the golden, curly head
Lay asleep in the tiny bed.
Then a mother knelt and said:
"God forgive the discontent,
Pardon Thou the murmur sent
With that last small assessment.
I'd forgotten that it might
Comfort bring, to some sad mite,
By whose bed so small and white,
Kneels no mother fond tonight."

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Sisters, the columns of the L. D. are open to every member of the L. S., and your Editress is at your service, but she absolutely refuses to send in communications for publication that are not signed with the writer's name. She will not publish the name should the writer desire her not to do so, but she *must* know who is responsible for every article that she submits for publication in the L. D.

Owing to restriction of space, long letters of condolence or resolutions of sympathy can not be published.

Every lodge should strive to send something to the Magazine, something of general interest, if possible. When writing of matters of purely local interest you should make your letters short. If you send in lengthy communications do not feel hurt if, when you see them in print, you are reminded of the experience of the old Virginia darkey who went fishing. Having caught one big trout, and, wishing to fish farther down the stream he tied his catch by a string to a small tree and went off. Along came a youngster, also fishing, who had caught nothing but one little shiner. "Hello," said the lad, "here's a find. I wouldn't steal a pin for the world, but fair exchange is no robbery."

So he carried off the trout and left the shiner tied in the same way to the same tree. When the old darkey came back he looked hard at the tiny fish, and scratched his woolly head in amazement.

"Dis am de tree," he soliloquized, "dis am de same string, an' dis mus' be de same fish, but Goramighty how it hab shrunk!"

So with your letters, if they contain long descriptions of balls, socials, etc.—they will appear, the same letters on the same subjects; but to make them fit into six pages—"Goramighty," they must be shrunk.

♦ ♦ ♦

Letters from Friends.

FROM L. S. 159—(*Member, Centerville, Iowa.*) Iowa Lodge is still progressing. It was organized in March, 1902, by Sister Groner, of Boone, Iowa, with eleven charter members. We now have sixteen active members, but the territory we have to work in is rather limited.

We meet in I. O. O. F. Hall the first and third Thursdays of each month. Our President, Mrs. Gilbert, is one of whom any lodge would be proud and deserves the co-operation of every member.

The B. of L. F. boys take great interest in our society and have shown their appreciation of it by presenting us, on Christmas day, with a set of badges, of which we are very proud.

We have given two socials, which were a success financially as well as socially. During the warmer weather many pleasant afternoons were spent together with friends. Light refreshments were served and each one taxed 10 cents. This helped to swell the treasury.

We were invited to Sister Holland's on February 14th, St. Valentine's day. We spent a very pleasant afternoon. She had the rooms very prettily decorated with small hearts cut from paper, in our lodge colors.

As she expects to leave us soon we presented her with a beautiful china cake plate and cracker jar.

Heart-shaped valentines tied with lodge colors were given as souvenirs. Refreshments were served and all went home feeling glad that we were members of the Ladies' Society of the B. of L. F.

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FROM L. S. 5—(*President, Needles, Cal.*) We, of Flower of the Desert Lodge, are never very idle, there always seems to be something for us to do.

Our joint meetings are certainly a success. We have a subject for debate each meeting and all take active parts in the discussions. We have taken in three new members lately and have the promise of several more.

We are planning for a box social soon. Our annual ball was a success.

I think the writings, in the Magazine, of Third Vice Grand Master Charles W. Maier are grand. What a true brotherly feeling he has for all of us.

We have had several bad wrecks here this winter and they have thrown a feeling of sadness over us. We fear for our loved ones even though we know that God watches over all.

Under the shadow of these fears and when passing through experiences similar to the one through which Sister Arkeills (whose husband's sad death is announced in this issue) has just passed, we realize what a comfort it is to have lodge sisters whose hearts beat in sympathy for us.

We wish all Societies success. We would be pleased to receive a visit from a member of the Grand Lodge.

♦ ♦ ♦

FROM L. S. 75—(*Member, Shreveport, La.*) We are beginning the new year

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with a better attendance and bright prospects. We voted upon one application and there are three others whom we hope to welcome before the end of this quarter.

We consider that we have a prize in our worthy President, Sister Alice White.

We wish to thank the B. of L. F. Lodge 52 for their assistance in our late bereavement.

May words of friendship be ever on our lips and may our hands perform daily deeds of charity. God bless the B. of L. F. and the L. S.

I wish to congratulate Editor Carter. May he and his bride glide down the stream of life through waves of happiness and under the bright sun of prosperity.

♦ ♦ ♦

FROM L. S. 84—(*Mrs. Geo. W. Cox, Chicago, Ill.*) Eloysia Lodge now has thirty-six members, a very good showing considering the fact that at one time we gave nine new members, at another seven, to organize new lodges.

At our last meeting I was obliged to resign my office, that of President, as I am leaving the city.

After meeting, the sisters had a pleasant surprise for me. A dainty luncheon was served. Covers were laid for twenty-two. After which I was made the recipient of a beautiful silver creamer and sugar, also a bouquet of our emblematic flower (red carnations). Taken so completely by surprise, my heart was too full for utterance, and I was unable to express the thanks I felt.

I wish, through the columns of the Magazine, to thank the sisters for their generosity, as well as for their loving words to me, all of which I cherish.

Though far away from them in person, my thoughts are often with the dear sisters of Eloysia Lodge. That prosperity and God's blessing may reign supreme in their homes is the wish of their absent sister.

♦ ♦ ♦

FROM L. S. 175—(*A Member of Signal Mount Lodge 372, Big Springs, Tex.*) Pride of the West Lodge gave their first annual ball on February 13th. It was a grand success socially and financially. The ladies gave to the preparations their best efforts. Much taste was shown in the hall decorations.

By 10 o'clock the hall was completely filled with merry dancers, who enjoyed themselves until about 3.30 a. m. and went away satisfied that they had had a good time. Much credit is due the members of Pride of the West Lodge.

♦ ♦ ♦

FROM L. S. 76—(*Chaplain, Louisville, Ky.*) As it has been some time since there has been anything in the Magazine from Lodge 76, I concluded to write a few lines and let the sisters know that we were still in existence.

We initiated nine new members last quarter and have good prospects for as many more this quarter.

We held a social meeting with the B. of L. F. boys of Lodges 102, 502 and 578 and their wives, mothers, sisters and sweethearts. We had dancing and refreshments and a general good time. There were about two hundred in attendance.

Everybody went home happy and ready to come again.

All the lodges will derive some benefit, such as increase of membership, better acquaintance among members, etc.

Our Society has a good and hard-working set of officers, and is growing fast.

♦ ♦ ♦

FROM L. S. 27—(*President, Chanute, Kan.*) I am indeed proud of our Society and of the work done by our sisters in the past year. We certainly have a band of faithful workers, all working for the good of our Order. Last month we had the pleasure of initiating a class of six into the mysteries of the L. S. on one meeting day. It was the largest class our Society has ever taken in at one time. Just now our time and thought is taken up preparing for the Kansas Union Meeting, to be held here in May. We are hoping to meet many old friends and many new ones at this meeting. Sisters from all States (also the brothers) will be welcome. Notice of the meeting will be found in this issue of the Magazine. May success attend the L. S., also the B. of L. F.

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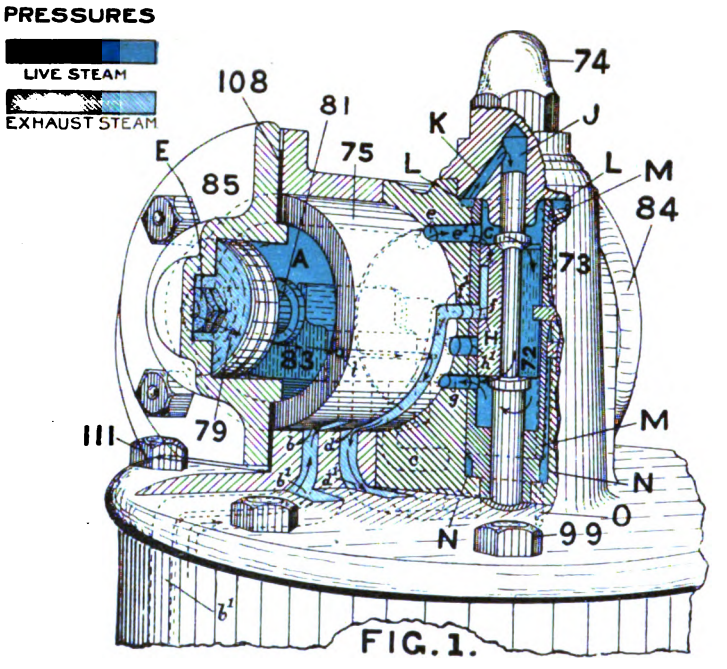


FIG. 1.

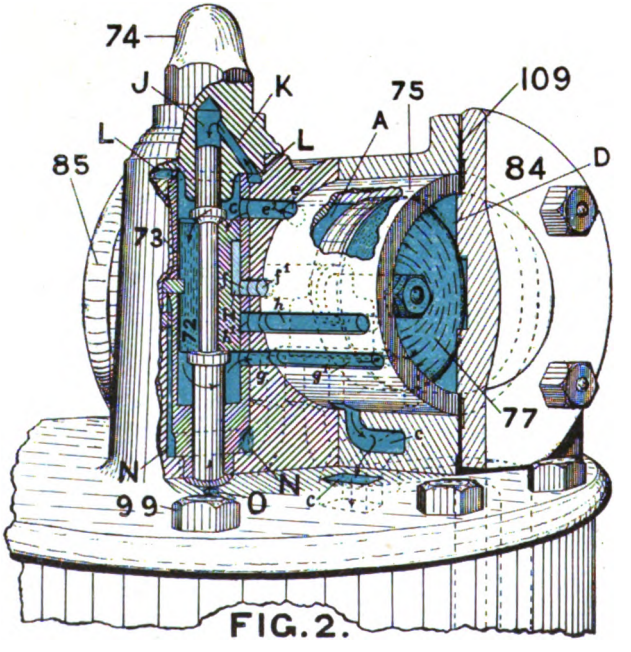


FIG. 2.

Locomotive Firemen's Magazine Educational Charts

WESTINGHOUSE AIR BRAKE SERIES

PLATE V— NINE AND ONE-HALF INCH PUMP (Valve Action)

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BROTHERHOOD OF LOCOMOTIVE FIREMEN'S MAGAZINE

W. S. CARTER
EDITOR & MANAGER

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May, 1903.

Plate V — Nine-and-One-Half-Inch Pump (Valve Action).

PLATE V of the Westinghouse Series of the Locomotive Firemen's Magazine Educational Charts shows sectional and perspective views of the valve action of the steam cylinder, with piston making the downward stroke.

The unique feature of these drawings is the manner in which the parts are cut in section. In both Figs. 1 and 2, the reversing valve *72* and connecting parts are cut in the same plane, Fig. 1 being viewed from the intake side of the pump and Fig. 2 from the discharge side. The differential valve and its bushing are shown in perspective as viewed from both sides. In Fig. 3, which appears on this page, the lines *wx* and *xz* show how Fig. 1 is cut sectionally, and the lines *yx* and *xz* show how Fig. 2 is cut. It will be noted that the differential valve and the bushing *75* are not cut through in section, as is reversing valve *72* and its bushing *73*, but is shown in perspective, the purpose being to show in detail the grooves f^1, *h*, g^1 in the differential valve bushing *75*, and the ports *f*, h^1, and *g* in the reversing valve bushing *73*.

As has been explained in preceding plates, "live" steam, or steam from boiler, is always present in chamber *A*, inside the bushing *75*, and between the pistons *77* and *79* of the differential valve. The plan view (Fig. 3) shows this space. The steam enters chamber *A* through a^1 and a^2 and is confined between the two pistons *77* and *79*, being prevented by these pistons from passing into chambers *D* and *E*.

Through the port *e* and passage e^1 there is always communication between chambers *A* and *C*, which maintains live steam pressure also throughout chamber *C*, above and below reversing valve *72*.

In Plate V the piston *65* (see former

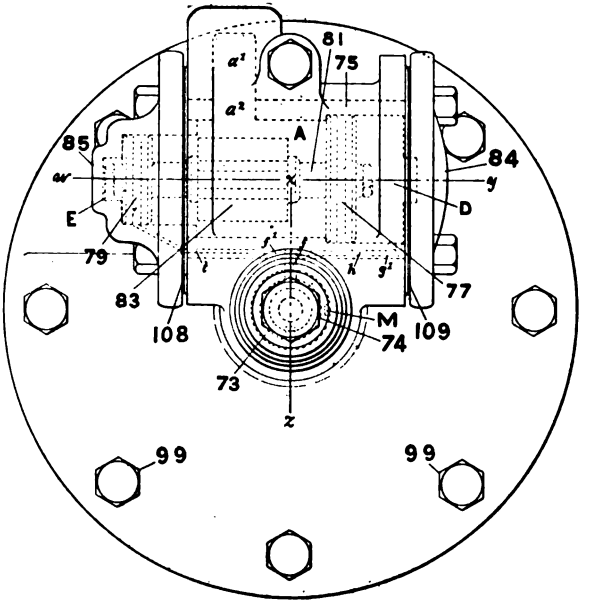


Fig. 3. 9½-Inch Air Pump (Valve Action)

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plates) is making the downward stroke, but at the termination of the preceding upward stroke the reversing valve 72 was moved to its upper position, where it remained, which uncovered port *g* and permitted live steam to pass through the groove g^1 into chamber *D* (Fig. 2).

In order that we may thoroughly understand the action of the differential valve we will repeat what has been said concerning other Plates:

It will be noted by referring to Figs. 1, 2 and 3, that piston 77 is of greater diameter than piston 79. When steam pressure is admitted into chamber *A* the natural result is that a greater pressure will be exerted upon the larger piston, which just as naturally causes the two pistons and their connecting rod (and the slide valve 83, which slide valve is hidden from view in Fig. 2, but is partially shown in Fig. 1 inside of bushing 75) to move to the right, or toward the head 84, but, as has been explained, when steam piston 65 reached the upper end of its stroke, the reversing valve rod moved the reversing valve 72 upward so as to uncover port *g*, and to admit steam into chamber D through groove g^1 (Fig. 2). It is evident that if there is the same pressure in chamber *D* as in chamber *A*, the pressures on both sides of piston 77 will balance each other. The pressure on piston 79 will then cause the two pistons and the connecting rod (and valve 83) to move to the left, or toward the head 85.

The cavity *H* in reversing valve 72 is always in connection with exhaust port *f* in bushing 73 and groove f^1 in the bushing 75, and through this groove with the exhaust port *d* and passage d^1 (Fig. 1).

It will be noted that exhaust steam is shown in chamber *E*, on the outside of piston 79. This chamber is always in connection with exhaust groove f^1 through the small hole or passage *t*, which is drilled through the bushing 75. As part of the head 85 is removed in Plate V, the entire passage *t* is not shown, but it has direct connection with chamber *E* as indicated by the arrows. The purpose of this connection is to relieve chamber *E* of any live steam that might leak past piston 79, and also to supply the slight pressure of exhaust steam, which acts as a cushion for piston 79 of the differential valve when it is driven to the left.

In chamber *J*, above the top end of the reversing valve rod, live steam is also shown, and it will be interesting to learn why this steam is there and how it gets there. This chamber *J* is in constant commnnication with the upper end of the steam cylinder, through passage *K*, into the passage *L*, which is connected by groove *M* in the reversing valve chamber bushing 73 with space *N* on the outside of bushing 73. A small hole or passage *O* is drilled through the steam cylinder head, connecting the upper end of the cylinder with space *N*. The entire connection between *L* and *N* can not be shown in detail because parts of the reversing valve chamber bushing 73 have been removed in Fig. 2. This connection *M* is indicated by dotted lines in Fig. 1. It will be observed that during the downward stroke of the pump, while live steam is in the upper end of the cylinder live steam is also above the reversing valve rod in chamber *J*, steam from the cylinder passing upward through passage *O* into the space *N*, thence upward through groove *M* into passage *L*, thence through passage *K* and into chamber *J*. By the same connections, during the upward stroke of the pump, while exhaust steam is in the upper end of the cylinder the current of steam will be reversed and exhaust steam will be above the reversing valve rod in chamber *J*. The purpose of this variable pressure in chamber *J* is to balance the pressure on the lower end of the reversing valve rod, and also to lubricate the rod in its bearing.

Fig. 1 shows the steam exhausting from the lower end of the cylinder, upward through passage b^1 and port *b* to cavity *B* under slide valve 83 (which cavity is shown on other plates), and thence downward through port *d* and passage d^1 out through the exhaust.

Fig. 2 shows the manner in which live steam is passing downward through port c^1 and passage *c* into the upper end of the cylinder. While a portion of passage *c* has been removed, the dotted lines indicate how *c* and *c* are connected.

In the next issue of the Locomotive Firemen's Magazine these same figures will be shown in Plate VI, except that the reversing valve 72 and the differential valve will be shown in the positions they occupy during the upward stroke of the pump.

* * *

Railway Wages and Prosperity.

Some employers of labor, and some publications that pose as representatives of employers of labor, take the position that regardless of the prosperous condition of the country, with the consequent increased price of everything a workingman must buy, working people should be will-

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ing that all of the profits of prosperity should go to the employers of labor.

As never before railway companies are prospering. Just as a merchant sees his "corner grocery" blossom into a "department store," so are railway stockholders witnessing their railways develop into greater institutions. The prosperity of railways is so great that they can not find means of expending their money in making improvements. Although the locomotive building establishments are running night and day in an effort to earn the money offered for new and more modern machinery, some roads find that their money is not accepted, and Canadian roads are sending abroad for their locomotives. The steel mills can not make heavy steel rails nearly as fast as railways would buy them. Car builders can not supply the demand upon them. At the present rate of additions and betterments the *actual* value of railway properties will be doubled within a few years; that is, the present prosperity will leave the railways twice as valuable as it found them. Wall Street, not to neglect opportunities presented, is busy manufacturing "securities" that more than equal every dollar of additions from profit earned by the operation of the roads.

And because railway employes find that it now takes $10 to buy as much as $8 did before this prosperity began, and because they insist that a portion of this prosperity be shared with them, certain selfish employers and their journals make dire threats against railway men's labor unions and accuse them of wrong. It is true that because of these labor unions wages have been advanced on many miles of railway, but because other railway employes think that they are entitled to some consideration, and are now asking for their share, an alarm is sounded that is nothing short of a threat to crush these organizations as soon as another commercial depression casts its shadow over the land.

If one-half of the railway employes have secured 10 or 15 per cent, increases in wages is that any reason that the other half should be satisfied with panic wages? Because one hears of many demands for increased wages by railway employes it must not be surmised that the same employes are making these demands. If *every* railway employe in the land had been granted a considerable increase in wages just as soon as prosperity came to the railways and to all other employers of labor, there would be some reason to caution railway employes against pressing the matter farther now. But such was not the case. Here, years after we have enjoyed prosperous conditions, we find many railway employes vainly pleading for at least a small share of increased earnings. They ask increases in wages that will recompense them for the increased expense of living. Of course, those men who are employed on the "piece work" plan, that is, by the mile, have an opportunity to make more miles now than before the country was so prosperous, but a prosperity that only makes men work longer with no increase in recompense for the same amount of labor is poorly distributed.

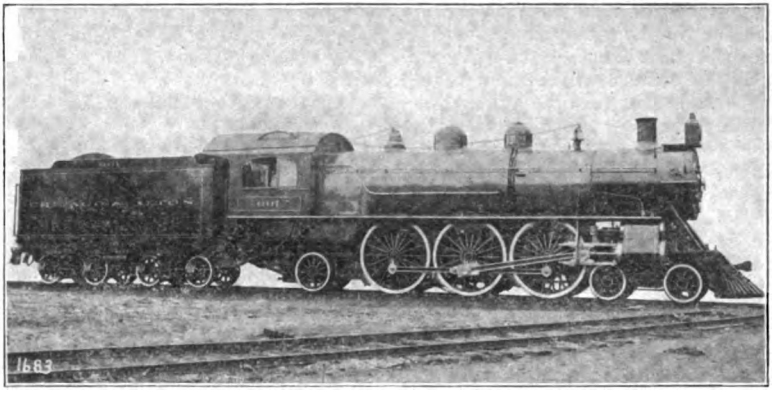
The following article is from the Railway Age for April 3, 1903, and may be taken by those railway employes who have not yet received any benefit from the present prosperity as a warning to take what they have got and be satisfied—or suffer the consequence:

"The dissolution by Judge Adams of his injunction in the Wabash case brings about a situation calling for the most careful and level-headed conduct on the part of the leaders of the railway brotherhoods. It is gratifying to note from the St. Louis dispatches that there is every probability that a strike will not occur. Such a happy termination of the dispute will be cause for congratulation all around, but especially so on the part of the Brotherhoods.

"The labor situation the country over is serious. It is probably less acute in the railway field than in some others, but we believe that if a strike of any magnitude among railway employes should take place at the present time it would be a most bitter one and the result, however costly and burdensome to the railways, would be immensely disastrous to railway labor. Railway employes, generally speaking, always have been comparatively well paid and the wage adjustments that have taken place during the last year or two have for the most part been decidedly one-sided. The employes have usually got the big end of the bargain, with the inevitable consequence of a feeling of elation and a sense of power which has not contributed to good discipline. More than that, several incidents of a political nature have contributed to this feeling. When President Roosevelt was made a member of the Brotherhood of Locomotive Firemen at the Chattanooga meeting the firemen as well as members of other unions in the railway service felt justly proud. When Mr. F. P. Sargent, the Chief of the Firemen's Brotherhood, was appointed by President Roosevelt to the responsible position of commisisoner of immigration, the railway men again had cause for pride in the signal promotion of one of their number. The recent announcement that Mr. Edgar E. Clark, the head of the Conductors'

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Brotherhood, would be appointed to the position of assistant secretary of commerce and labor tended to still further enhance this feeling. Now, we have no criticism to make of President Roosevelt either for joining the firemen or for appointing Messrs. Sargent and Clark. They are both excellent men and their appointments, considered either from the standpoint of political expediency or of good public service, are immensely better than many purely political appointments made for the benefit of incompetent or broken-down politicians. But the more or less critical situation that exists in all lines of labor serves to increase the gravity of the responsibility which rests upon not only Mr. Sargent and Mr. Clark, but upon the heads of all the railway orders. If railway employes flushed with recent victories are carried to extremes; if, by reason of their unquestioned solidarity in wage matters, they believe that they can enforce any demands they choose to advance; if, misconstruing the import of the political incidents to which we have alluded, they think that whatever happens they have powerful friends at court to protect them in a crisis, they are playing with fire.



BALDWIN PASSENGER ENGINE FOR THE C. & A.

Cylinders, 22 x 28 inches; heating surface, 4,078 square feet; drivers, 73 inches; weight on drivers, 141,700 pounds; total weight of engine, 219,550 pounds

"Doubtless some of the increases in pay lately obtained were due to natural causes—the working of the law of supply and demand. The demand for labor has been unprecedented. Any man of intelligence and experience in railway work has been able to get employment. Competition among employers for the services of wage earners has been very active. Under such conditions increased wages is inevitable. But there is no doubt that some of the increases within the last year have been obtained practically under duress, for the reason that financial interests have been timid, dreading the consequences of a strike. Managers have yielded many points, not on their merits but purely through considerations of expediency. But advances on such a basis are not likely to be permanent and there is surely a limit beyond which they can not go. The labor leaders are doubtless claiming credit for the entire advance. For so much as they have been able to procure over and above that which would arise from natural causes they are entitled to a certain kind of credit, but if they push the limit too far they will merely create conditions, the reaction from which will be harmful to their own interests. Up to the present time the railroads have yielded on the score of expediency. The rising tide of costs is reducing net returns. From large increases in gross earnings the companies are getting constantly less net profit. It is now time for the railway labor unions to consider the matter from the standpoint of expediency. A scale of wages so high that the railroads will not be able to meet it will be less beneficial in the long run to employes than a reasonable scale which will be more or less permanent. The abnormally high scale will be reduced through sheer force of necessity and the reduction will go much lower than would the reduction from a more reasonable basis. It is well for the employe to get all that he can, but when he demands more than the employer can pay he is placing himself in a position from which he will have a fall. These are pre-eminently times for the labor leaders to be cautious, careful and conservative."

What makes the foregoing indictment of railway employes and their unions more unjust is the great increase of the labor exacted of them for the same pay. Railway companies, by the introduction of large locomotives, are securing much greater service, and consequent greater earnings, from train employes without

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paying them, in many instances, for this greater service. To be explicit, let us quote from the same number of the Railway Age in which the foregoing article was published. It will be noted that a locomotive fireman in 1902 was required to furnish steam with which to develop 739 horsepower, while in 1897 he was only required to make steam with which to develop 493 horsepower. This, according to the Railway Age, is "an increase of 135 per cent. in five years." And the Railway Age also says that the "revenue ton miles per mile of road increased in four years, 1898 to 1902, 77.25 per cent." And yet the Railway Age is much alarmed because locomotive firemen dare ask for some recompense for this increased labor and a share of their increased earnings. Having read what the Railway Age said in the foregoing, now read what it says about the increased labor that is imposed upon locomotive firemen—and remember that both of these articles appeared in the same number.

"In an editorial in The Railway Age of March 20, 1903, on 'Traffic Congestion and Increased Facilities,' we referred to the fact that some large roads actually had fewer locomotives in 1902 thin in 1897, and explained that these decreases do not necessarily indicate a loss in the total capacity of the motive power. A good illustration which shows how the average horsepower of locomotives has increased since 1897 is found in the annual report of the Northern Pacific for 1902. This road was one of the first to discover the important fact that the tractive power of locomotives is not the only element to consider in estimating the hauling capacity of a locomotive, and that the horsepower which can be sustained through quite a range of speed is a still more important matter. In investigating the subject it was soon found that the boilers on old engines were too small to sustain maximum tractive effort even at slow speeds and the new locomotives for this line were provided with very large boilers. The effect of large boilers on the increased horsepower is shown by the tables below in which the horsepower given is not the maximum of which the engines are capable for short intervals under the most favorable conditions, but it is what they are capable of developing continuously under speeds and conditions that are common in the service to which the various types are assigned.

Fiscal Year Ending June 30.	*Number Road Engines.*	*Total H. P. Capacity.*	*Average H. P. Per Engine.*
1897.....	505	249,275	493
1898.....	460	263,625	573
1899.....	486	291,205	600
1900.....	517	326,785	632
1901.....	619	415,970	672
1902.....	694	512,720	739

"It appears from the above that in this period from 1897 to 1902, while the number of engines increased only 17.6 per cent., the total horsepower of the road equipment increased 108 per cent. The figures are to June 30, 1902, and before the close of the year sixty-one new engines were added. While the average horsepower of the equipment in 1897 was 493, the average of eighty-three engines added in 1901, was 1,182 horsepower, and it is probable that those bought in 1902 exceeded 1,200 horsepower. If we take this figure then the total horsepower at the close of 1902 was 585,920, or an increase of 135 per cent. in five years. From the tables in the editorial referred to, we notice the revenue ton miles per mile of road increased in the four years 1898 to 1902, 77.25 per cent. From the table above it is seen that the total horsepower of locomotives increased in this period from 263,624 to 512,270, or 94 per cent. On such a basis of comparison it appears that the motive power on the Northern Pacific has increased more rapidly than the ton miles moved, but as the demand for more locomotives on that line still continues, an allowance must be made for the increase in power used in passenger service."

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Responsibility of Fellow-Servants.

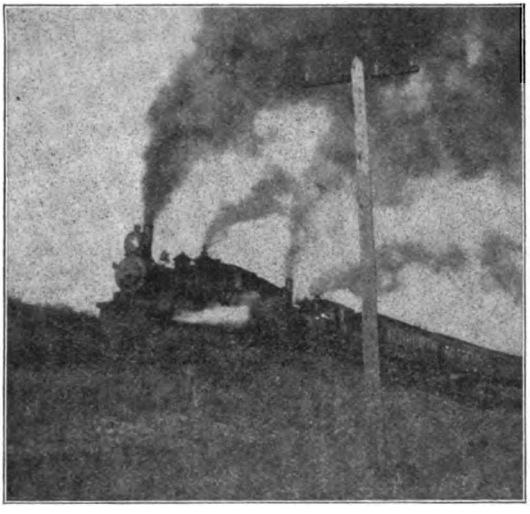
Attention is called to the discussion at the February meeting of the Rocky Mountain Railway Club of the question of responsibility of railway employes for accidents, which discussion is published in this issue. While there can be no denying the fact that many railway employes are almost criminally careless, it is not so plain that the careless employe's fellow-workers are in any way responsible for such carelessness. Of course, as is suggested in the discussion, in some instances employes fail to report their associates to the proper officials, when for the protection of themselves such men should be discharged, but the fact remains that as long as employes as a class have no jurisdiction over the employment or discharge of their associates, such jurisdiction being reserved by the corporation, the corporation should be held responsible for the acts of their agents.

If the men in train service had the authority to select their associates then they should be held responsible for the incompetency, negligence or carelessness of such associates, but they have no such authority and should not be burdened with the responsibility. How many "kid" operators would the men in train service permit if they had their way about the matter?

It will be noted that the principal speaker assigns about 80 per cent. of all accidents to the fault of "employes." Is

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it not a fact that 100 per cent. of all accidents may be assigned to the fault of "employes" of the stockholders, if we are to include every one from the board of directors down to the call boy among such employes? If a broken rail, a washout, or anything else causes a wreck is it not the failure of the proper official to detect the defect that is at fault? Is not a failure of the proper officials to equip a road with double track and block signals partially responsible for most of the collisions on single track? While such arguments are worthy of but slight consideration, so are the arguments of-



HILL CLIMBING IN SOUTH DAKOTA

On F., E. & M. V. Ry. between Whitewood and Deadwood

fered by some of the speakers at the meeting of the Rocky Mountain Club who attempt to place all blame upon employes for the acts of their fellow-workers.

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Corporation Stock Investments.

From time to time announcements are published by railway and other industrial corporations that arrangements have been made to sell stock to employes, so that the business of the corporation may be placed on a "profit-sharing" basis. If operating officials instead of Wall street speculators were in control of the financial affairs of such institutions it might be a safe venture for an employe to invest his savings in the corporation that gave him employment, but under the present practice of stock-jobbing it is little less than criminal for the "Steel Trust," or any similar concern, to accept the few dollars that have been saved from the small wages of an employe.

As evidence of the manner in which securities are destroyed and created by the financial jugglers, the recent Southern Pacific suit may be cited. The following is from a New York press dispatch:

The complaint states that the Central Pacific Railroad Company is the owner of railways in the State of California and that the laws of that State do not permit a railway corporation to issue bonds in excess of its capital stock. In 1899, the complaint charges, the individual defendants named, organized under the laws of Utah the Central Pacific Railway Company; that the Central Pacific Railway Company was induced to transfer all of its properties, rights and franchises to the Utah corporation. The latter, the complaint charges, possessed no property, was entirely without financial responsibility, and the transfer was made without consideration, was void, fraudulent and illegal, and took away the constitutional rights of the plaintiffs, rendering valueless their stock.

It is charged that the individual defendants, having acquired possession of the California properties, at once issued $120,000,000 of mortgage bonds upon it, $53,000,000 in excess of its capitalization of about $67,000,000, $100,000,000 of first refunding mortgage bonds, secured upon the properties of the Central Pacific Railroad Company, and in addition $20,000,000 of mortgage bonds as secured upon the same properties.

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For a further cause of action, the plaintiffs alleged that in violation of the authorized capital stock of the Central Pacific Railway Company the individual defendants caused to be issued by the Central Pacific Railroad Company $20,000,000 preferred stock of the latter corporation, which purported to entitle the holders to participate in the profits and earnings of the Central Pacific Railroad Company in preference to its legally authorized shareholders.

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The Elkins Railway Law.

It is said that the Interstate Commerce Commission has made public the following interpretation of the Elkins law:

1. The carrier is made criminally liable in all cases where the individual has been heretofore.

2. Wilful failure to publish tariffs as required by law, or to observe such tariffs, is made a misdemeanor, punishable by a fine of not less than $1,000 nor more than $25,000 for each offense.

3. "To offer, grant or give, or to solicit, accept or receive any rebate, concession or discrimination in respect of the transportation of any property * * * whereby any such property shall, by any device whatever, be transported at a less rate than that named in the tariffs published and filed by such carrier" is made an offense, punishable by like fine as above.

4. Punishment by imprisonment is repealed in all cases.

5. In proceedings before the commission, or before the courts, shippers, as well as carriers, may be included as parties.

6. The Federal Circuit Courts are given power to interfere by summary process to prevent departures from the published rates or other "discriminations forbidden by law."

1. We are of the opinion that free or reduced transportation given "on account of" a shipper's business, or to influence that business, which is the same thing, would be a "rebate, concession or discrimination" under the Elkins bill. Any concessions of that kind to be legal should be specified in the tariff and granted alike to all shippers.

The granting of free transportation to shippers is often a serious discrimination. The only way to deal with it effectively is to stop it altogether, and since this law furnishes a possible means of doing so, its enforcement should be the aim of the carriers as well as the commissions.

2. The subject of drayage has been discussed by the commission and the courts. The fair import of those discussions appears to be that this service is connected with the transportation, and that the charges therefore should be stated in the published tariffs. This being so, it would be a violation of the law to perform the service of drayage without providing for it in the tariffs, or to perform it for one and not for another.

3. It is not believed that the payment of a reasonable commission for soliciting freight, or in the sale of tickets, can be held to be a rebate if the transaction is an honest one. If the commissions are paid with the intent or the expectation that they will be used, or if they are used, for the purpose or with the effect of granting a concession, the payment of such a commission would doubtless be held and ought to be held a violation of the law.

4. The commission has held that the present statute requires the publication of export and import tariffs. The Elkins bill does not apparently change the requirements of the law in this respect, but it does afford the means for enforcing those requirements.

5. It is difficult to see how the practice of charging lower rates to those who are establishing new industries than are charged at the same time to shippers of the same articles between the same points can be excepted from the operations and obligations of the law, however unobjectionable such a practice may be from a railroad and general economic standpoint.

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*Overloading Locomotives.**

The average trainload in tons on our railways in 1889 was 179.35 and in 1901 it was 281.26, an increase of 101.91. This is due to three causes: reducing gradients, heavier locomotives and heavier loading of engines. These methods have increased the transportation capacity of the railways which adopted them and reduced expenses, but the third method was carried to such extremes that progressive railway managers have called a halt. The overloading of engines is a most expensive practice, occasioning more repairs than ordinarily needed and excessive fuel consumption, it lessens the capacity of a railway, is expensive in overtime and is indirectly the cause of train accidents.

*By Mr. G. J. Bury, Superintendent Lake Superior Division, Canadian Pacific Railroad. Reproduced from Toronto (Ont.) Railway and Shipping World.

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The traffic of but few lines is constant, on the majority of roads fluctuating, by reason of the large freight movement following the garnering of the crops, etc. Officers closely identified with transportation recognize that the fewer additions that have to be made to the staff in moving a certain tonnage the better are the results. If freight trains average 15 miles an hour, train and enginemen in freight service can make 5,000 miles a month, while if the average be reduced to eight miles an hour (and I have known districts where the average was only four miles an hour), the men can not stand more than 3,000 miles a month. Sixty crews under the former average will make 300,000 train miles in a month, while at an average of eight miles an hour it will take forty more crews or 200 extra men to handle the same train mileage. Train and enginemen would be content to average 2,500 miles per month during slack season, or, for say eight or nine months in the year, provided they make 4,500 or 5,000 during the remainder. Therefore, when traffic becomes heavy the constant train staff could be looked to handle double the freight traffic if the engines were loaded so that the former average speed be maintained. The more new men that have to be employed, and the longer hours train crews are kept on duty the greater the risk of train accident, as less care and watchfulness is displayed—and watchfulness and alertness has prevented many train wrecks. A man can only be expected to work a certain number of hours without rest, and when men are a long time on the road their duties are not as well performed as when fresh, resulting in extra fuel consumption, dilatory movements, etc.

Looking at the matter from a financial standpoint, a consolidated engine hauls a train weighing 1,100 tons (tare and contents) over 118 miles in a district where there are several grades of 1 per cent., and taking into consideration time meeting trains, and letting faster trains pass, slowing up over grades, etc., averages eight miles an hour, the cost being as under:

Wages engineer and fireman.....	$6 90
Wages engineer and fireman, overtime	1 75
Wages conductor and brakemen...	7 73
Wages conductor and brakemen, overtime	2 88
Oil and waste for locomotive.....	30
Fuel (7 tons at $3.20).....	22 40
	$41 96

Or 32.3 cents per thousand ton miles.

The same train, if loaded with 1,000 tons (tare and contents) averages fifteen miles an hour over the same district, and the cost is:

Wages engineer and fireman	$6 90
Wages conductor and brakemen...	7 73
Oil and waste for locomotive.....	30
Fuel (6 tons at $3.20).....	19 20
	$34 13

Or 28.8 cents per thousand ton miles.

There is less strain on the engine in hauling the lighter train and engine repairs less, but what the difference would amount to could only be ascertained by actual tests carried over some period.

The economical engine load is variable and is governed, not only by the number and length of grades, but by the density of traffic. On a road where traffic is very light at certain periods and dense at other periods, it might be good transportation to load engines heavily during light traffic, but it would be suicidal to load engines heavily when traffic was dense, even one train staggering and doubling over a district will demoralize the trains following and those met, resulting in overtime, extra consumption of fuel and the risk of accident which increases when train and enginemen are long hours on duty. In loading engines it has been the practice on some roads to so load them that they would haul a train at seven miles an hour over the steepest grade. If the steepest grade were of short length, no great delays might result, but if the steepest grade, for instance, was to be eight miles in length, an engine, with a run for it, would take one hour to make the eight miles and the longest time it takes to make the distance between two stations is what limits the traffic. With trains loaded in this way, the traffic would be greatly restricted.

In a general way, locomotives should be so loaded when traffic is dense that they may make an average speed over a district of fifteen miles an hour, providing there are no unusual delays, and while theoretical tests are all very well for a basis on which to work, the only way to arrive at the engine load is by actual tests in practice. After ascertaining what an engine will do in actual practice the load should be shaded slightly from this. No fixed rule can be given for the loading of engines, but the conditions of each district at each period must be studied and the load may be made such that the train can make reasonably good time. It may be taken as a general principle (providing engines are in good

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condition) that, where trains are a long time on the road, and the dispatching is not at fault, that the engines are too heavily loaded. A live superintendent will hustle over his district on freight trains, see on the ground where the trouble lies, and fix the load to meet the conditions without delay.

The foregoing paper was read at a recent meeting of the Canadian Railway Club.

Odds and Ends

Notes.—A press dispatch dated Tacoma, Wash., March 23, 1903, states that one hundred conductors and gripmen of the Tacoma Street Railway Company have struck for an advance in wages.

From the Chicago Record-Herald of March 29, 1903, it is learned that owing to the laying off of eighty-five men in the shops of the Chicago and Eastern Illinois Railroad about 500 shop hands have walked out, which includes car repairers, laborers, tankmen, oilers, car inspectors, planing mill, belt, wheel room and cab department men.

The McConway & Torley Company, of Pittsburg, in their full-page advertisement on page I of this issue of the Magazine, invite practical railroad men to write them giving their personal opinions concerning the efficiency of their new Kelso Coupler. While locomotive enginemen, perhaps, are not brought in direct contact with the operating of car couplers to so great an extent as are the trainmen and switchmen, at the same time all railway men in train service are greatly interested in the adoption of perfect automatic couplers, and the Brotherhood of Locomotive Firemen in the past has expended great energy and funds to secure the passage of the Railway Safety Appliance Laws which require cars to be equipped with power brakes and other safety devices. Read this advertisement and then write them, giving them the benefit of your experience and ideas on the subject.

It is said that the Pennsylvania Railroad has prohibited the playing of cards or drinking of liquors by passengers on its trains. The Waterloo (Ia.) Courier, of March 19, 1903, says: "All who travel have at some time or another suffered from one or the other of these insufferable annoyances, whose inhibition should be promptly followed by other railroad systems. If it is possible to conceive of anything more aggravating in a passenger coach than the vulgar enthusiasm arising over a game of cards and the mortifying hilarity of a party of boozers this paper would like to have it enumerated."

It is reported that the Chicago Great Western Railroad has received 20 new passenger engines; that the Nashville, Chattanooga and St. Louis Railroad is building 1,000 box cars, each of 60,000 pounds capacity, and has placed an order for 20 heavy freight locomotives; that the Erie Railroad will purchase 150 new locomotives, 1,000 freight cars and 50 passenger coaches, and that the Illinois Central Railroad has placed an order with the Rogers Locomotive Works for 50 locomotives.

The Hannibal (Mo.) Journal, of April 1, 1903, says: "The M., K. & T. has secured an injunction in Chicago against the Credit Realization Company restraining that company from prosecuting actions at law to procure judgments against it as garnishee. The order also prevents defendants from preventing company paying wages due its employes. It charges that the company has been buying up doubtful claims against M., K. & T. employes."

The Wheeling and Lake Erie Railroad is said to have closed a contract with the Baldwin Locomotive Works for 27 new locomotives, 15 of which are for freight use and will be of the heavy compound consolidated type; 6 are to be heavy high-wheel passenger engines, and 6 large switching engines.

It is stated that the Chicago, St. Paul, Minneapolis and Omaha Railroad is conducting experiments with a view to establishing the telegraphone service, so that trains en route may be put in communication with the superintendent's office.

The Boone (Iowa) News, of March 21, 1903, says: "The latest railway device is to enable operators to signal trains at any point along the line. Incandescent electric bulbs are placed on telegraph poles at stated periods, and when the engineer sees the light turned on he is supposed to stop his engine and wait for or-

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ders. This should reduce accidents to the minimum."

The Chicago Record-Herald, of April 5, 1903, says that the Brotherhood of Railway Expressmen of America, the first national organization of the railway expressmen, was formed at the convention held in Chicago, which adjourned after a week's session, and begins its existence with a membership of 3,000 out of 150,000 railway expressmen in the United States.

According to the Sacramento (Cal.) Record-Union, of March 31, 1903, train agents will be placed on all important passenger trains on the three great routes of the Southern Pacific Company, April 15th. The positions thus created are to be filled by senior passenger brakemen, with increased salaries, whose duties it will be to collect tickets and fares, the object being to lighten the duties of the conductor and allow him a better opportunity to attend to the details of running his train, etc.

A circular letter, said to have been issued by Superintendent W. L. Dorr, of the Erie Railroad, is designed to raise the standard of personal appearance of conductors and trainmen in the passenger service of that road. According to press reports, a bureau of neatness is to be maintained at the expense of the company, for the use of which tickets will be provided the employes, entitling them to have trousers cleaned and pressed, besides other articles of apparel, and shoes shined.

The Crandall Packing Co., manufacturers of and dealers in steam, water, gas and ammonia packings, New York City, have sent out a circular letter in which they say: "Owing to the large increase in the sale of 'Crandall Packings' we are compelled to move our offices and wareroom May 1, 1903, to the Liberty Building, 123 Liberty street, Rooms 207-208-209-210, where we carry a large stock of all styles of Crandall Packings, enabling us to make prompt delivery of our goods."

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Instructions on the New York Air Brake.—During the month of March last, Mr. J. P. Kelly, an air brake expert in the employ of the New York Air Brake Company, made a tour over the Hocking Valley and the Toledo and Ohio Central railroads, and with the aid of stereopticon views delivered a course of lectures on the construction and operation of the New York air brake and also on the best methods of handling the same in service, and on repairing defective parts. Mr. Kelly spent six evenings in Columbus, three in Bucyrus, and three in Middleport, Ohio, and the lectures were attended by about six hundred employes, consisting of engineers, firemen, conductors, shopmen and repairmen. Road Foremen of Engines Engler, Hill and Haines were in attendance throughout the course. Mr. Kelly was assisted by Mr. William Owens, who is a New York air brake inspector, and who looks after the New York equipment on these roads.

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Didn't Want to Get Wet.—"You see," said the old locomotive engineer, "railroad officials don't look at things quite as the public does. On one of my runs a year ago I found a certain bridge swept away and I had to back up about two miles to get orders. As I reached the station the division superintendent came out and demanded:

"What's the reason for all this?"

"Bridge over Maple river gone," says I.

"And why didn't you run your train into the river?"

"My fireman didn't want to get wet."

"Humph! Bounce him for blocking the road, and don't you make another such mistake unless you want a year's vacation."—Chicago News.

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Gray Beards Do Good Railroading.—"On no road in the country are to be seen so many gray beards as on the Chicago and Northwestern. Men 60, 65, 70, and even 75 years of age, are to be seen running engines, and on no railroad in the country, perhaps, is better railroading done than on this same Northwestern. Engineers who need spectacles are required to wear them. On most roads an engineer whose eyes are not good enough to see without glasses is not good enough to run an engine. Some time ago the officials of the Northwestern had the eyes of the engineers examined by a specialist and all who needed them were fitted with glasses."—Danville (Ill.) Commercial.

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Auxiliary Reservoir Charged in Four Seconds.—According to the Altoona (Pa.) Mirror, of March 26, 1903, Mr. John S. Barner, an employe of the New York Central Railroad, has invented a new device that will charge an auxiliary reservoir on a car in four seconds. It is said that after

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the brakes have been set the reservoir can be recharged, while the automatic retainer will hold the brakes until this is done. In a recent test of the device it is said to have worked to perfection.

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Railroad Ties of Cement.—Experiments with ties made of Portland cement are now being made by the Michigan Central and Pere Marquette Railroad according to press reports. They are said to be practically indestructible, and that there is a reduction in first cost as well as maintenance. Vibration is received and distributed by means of wooden blocks, acting as cushions, which are placed between the tie and the rail, and the blocks which are chemically treated can be quickly removed and replaced without disturbing the tie. Wooden plugs are placed in the ties during the process of manufacture, before the cement has set and hardened, and the blocks are held to the ties by spikes driven into these wooden plugs.



AN APPROACHING TYPHOON, ISLAND OF GUAM

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A Singular Accident.—On March 19, 1903, according to the Hutchinson (Kan.) News, when a passenger train on the Union Pacific Railroad was near Aroya, Col., fire was thrown from the firebox of the engine in such quantities that the cab almost instantly caught on fire. The engineer, after shutting off steam and setting the air brake, either fell or jumped from the engine and broke his neck. The fireman was severely burned about the face and hands, but escaped more serious injuries by crawling over the tender.

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Engineers Die in Their Cabs.—In a dispatch dated Tamaqua, Pa., March 12, 1903, to the New York (N. Y.) Press, it is stated that "brakemen astonished that Charles Geary, the engineer of a Philadelphia and Reading Railroad freight train, did not answer their signals, investigated and found him dead in his cab here this morning, with one hand clasping the reverse lever and the other on the throttle.

"A few hours afterward Charles Lindemouth, another Reading Company engineer, was overcome by gas while running through the North Mahanoy tunnel. He will probably die."

Another dispatch dated Neenah, Wis., March 25, 1903, to the Milwaukee Evening Post, says: "Charles Sharkey, an engineer on the Chicago, Milwaukee and St. Paul road, dropped dead in his cab this

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morning. He had his hand on the throttle when he died. His fireman ran to his side when he heard him fall, but found him dead."

Another dispatch dated Baltimore, Md., April 11th, says: "A fast-flying Royal Blue train on the Baltimore and Ohio Railroad, running between New York and Washington, ran twenty miles tonight without an engineer at the throttle. J. Frank Furley, the engineer, leaned out of the cab window at a point south of Wilmington, Del. At Hayes station, Cecil County, Md., the fireman found Furley lying dead in the cab. He had been struck by a telegraph pole and instantly killed."

* * *

President Theodore Roosevelt on an Engine.—A dispatch dated Pittsburg, Pa., April 1, 1903, to the Springfield (Ohio) Sun, says: "President Roosevelt viewed the scenery around the famous Horseshoe Curve this afternoon from a seat in the cab of the locomotive attached to his special train, and after a ride of about fifty miles, expressed himself as delighted with the experience.

"When his special train reached Altoona at 4:50 o'clock this afternoon, the passengers alighted from his car and walked rapidly to the front of the train. Two locomotives were coupled to it ready to pull the heavy cars over the Allegheny mountains and the president shook hands with the crew of each. He then climbed into the cab of the rear locomotive. In the cab with him were Secretary Loeb, Special Engineer Robert McLaren, and the regular engineer and fireman. As he took his seat the president remarked that, 'Being a member of the Brotherhood of Locomotive Firemen, I think I ought to take my turn at the feeding of the furnace,' but he did not shovel coal."

* * *

Mexican Methods.—The Albuquerque (N. M.) Democrat, of March 12, 1903, says: "Traffic on the gulf division of the Mexican Central railroad was tied up for twelve hours the other day on account of the peculiar law of Mexico relating to the responsibility of railroad trainmen for accidents. Early in the morning the station agent at San Francisco discovered the dead bodies of two Mexicans on the Mexican Central's track. He immediately notified the local judge at that place, who, in view of the fact that he could not discover exactly what train had killed the two Mexicans, ordered all trains coming into San Francisco to stop, and not to proceed until it had been discovered which train struck the Mexicans. This order soon had the effect of completely blocking all traffic on the division, as the engineers would not proceed against the judge's order. At last, the matter becoming serious, Governor Reyes was appealed to. The trouble was explained to him and he was asked for an order that would allow the trains to proceed. This was given."

* * *

Locomotive Life Here and in England.—"An expert on railway affairs has recently said that on English railways it had been found most economical that locomotives should go through the shops every two years, and that there engines were built with a view to longer service than in America. It has only been the last two years that American roads generally have taxed the capacity of the locomotive manufacturers to the utmost replenishing their worn-out engines and providing new ones to meet the demands of the increasing volume of business. The economics of the nineties led many roads to overtax their motive power. Comparing the average lifetime of an engine, this expert says than an English company had stated the average lifetime of a boiler on a basis of 350,000 miles to be, passenger engines, 9 years; freight engines, 14 years; switching engines, 17 years, and branch passenger engines, 16 years.

"He did not agree with this, claiming that passenger express engines in England last 25 years; freight, 26 years; local passenger, 25 years, and freight engines 27 years. The mileage of express engines from this data varied from 700,000 to 1,000,000 miles; freight engines, from 500,000 to 800,000 miles, and local passenger engines, from 500,000 to 800,000 miles. Comparing this with American experience, he claims that the aim of Americans is to continue the life of a locomotive 15 years, getting the utmost out of it during that time, and then throwing it on the scrap heap, if it could not be sold to some smaller road. The average lifetime of engines on six American roads, as stated in this connection, has been demonstrated to be: Express engines, 18 years; freight engines, 16 years; local passengers, 19 years. He finds under this claim that all classes of American engines make a higher mileage than the English, the range being between 1,000,000 and 2,000,000 miles. The average lifetime of the boiler varies slightly in the two countries. In America engines are taken to

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the shops for overhauling on the average from every year and a quarter to a year and a half, as compared with two years in England."—New York Evening Post.

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The Fellow-Servant Bill.—Hansbrough's fellow servant bill (H. B. 74), "providing that railroad companies shall be liable for injuries to employes whenever caused by wrongful act, default, or neglect of any employe superior to the person injured, or from such act, default, or neglect of the company or employe in another department or on another train," passed both House and Senate at Salem, Oregon, February 5, 1903. A correspondent writes that Mr. Hansbrough is a member of the Order of Railway Conductors, from Roseburg, Oregon, and was elected by organized labor, as was the Governor. The Governor was not a railroad man, but was a lawyer of Portland. However, he has shown by his acts that he is a strong friend of labor. To Mr. Hansbrough and the Governor is said to belong the credit for the passage of the bill.

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Meant to be Funny.—A correspondent sends the following:

M. M. Jimmie, I have a stalling report here against you for the want of steam.

Jimmie. It ain't so; who said so?

M. M. Why the engineer says he stalled for the want of steam.

Jimmie. It's a lie; he had 70 pounds of steam that he didn't use at all.

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Some of Them Were Brotherhood Men.—The Indianapolis Union has the following to say of those railroad employes who came from distant States to defeat the Indiana railroad employes' bills in the Indiana Legislature:

In order to defeat the double-cab bill the railroad companies brought employes here from other States. Some from as far as New York and Maryland. These poor dupes asserted that they had not been told why they were brought here until they had arrived, but it is a notable fact that they did the companies' bidding after they had been acquainted with what their mission was, and this in one or two instances where they asserted they did not think they were doing right. What must one think of men who can sink to this position? Knowing they were in the wrong, carted here like so many cattle and instructed to follow their masters' bidding, yet knowing they were wrong in so doing—are not these men an inspiring sight for Young America to contemplate? And they deserved every word said against them by Senator Fortune when he characterized them as the men who had taken the places of the strikers during the Chicago trouble, and that they had evidently heard of the contemplated trouble on the Wabash and were getting into this part of the country so they would be in easy position to take the places of those men who went out. Every one of them that heard Fortune's philippic—and they were all there—if he had a grain of manhood left in him must surely have realized how Benedict Arnold felt after his little transaction. But the strangest thing about the whole transaction is that some of the Senators who are as fearful of doing something that is wrong, would accept the word of these outsiders and admitted company men as against the word of home men, and those just as competent to know as the hirelings of the company. Is it possible that the fellow-servant act had any weight? It is, however, truly touching to see the solicitude of some of the Senators that all sides shall be heard on these questions, especially when the side that has not been heard is the corporation side.

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Cause of Railway Bankruptcy.—Railway and Engineering Review says: "It is not true that bankruptcy is always staring railway managements in the face. The financial failures in railway operation have never been excessive as compared with those in any other kind of business. Such failures have rarely, if ever, resulted from bad management of the property; but have been due to lack of wisdom in planning new roads, over-capitalizing them, and sudden and unexpected changes in the general business situation. Whether 'commercial education' will prevent communities from wanting additional railway facilities in advance of the ability to support them, or will keep men from the effort to make money in railway building, is at least an open question. Nine-tenths of the railway mileage of the country is now in such hands and so situated that bankruptcy is an impossibility even in the hardest of times. Much less does it confront them when business is plenty or 'more than they can handle.' This statement taken altogether is not only untrue, but stupidly so."

And Railway World says: "The amount of railway and industrial securities which are either authorized or shortly to be issued has been estimated to exceed $300,000,000. The variety and extent of the new offerings have overtaxed the capacity of the market, and much time will probably elapse before the new issues are absorbed by investors. Indeed, in

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some quarters, the question is raised whether we have not gone too far in the creation of new securities, and some have even ventured to predict that the load of new capital would prove to be too heavy, and to call attention to the consequences of such overissue in the past. The creation of new capital during recent years has been enormous. From 1898 to 1902, the amount of new securities listed on the New York Stock Exchange, not including those substituted for old issues, amounted to $2,325,000,000. It is not unlikely that the operations of the present year will raise this total to three billion dollars. Railway corporations have borne their full share in this increase of capital. During the past year, for example, $434,612,000 of bonds and $390,388,340 of stocks were listed by railway companies to provide capital for various purposes. A large number of these issues were in exchange for the stocks of other companies at liberal prices. Construction and betterments were also paid for on a large scale from the same source. In short, we have had, on the face of things, a repetition of the expansion of railway capital from 1870 to 1873, from 1879 to 1882, and from 1887 to 1891. The question naturally arises, will the consequences of the present expansion be similar to those of former years? Of those consequences our recollection is unfortunately too vivid. From 1887 to 1891, for example, $1,038,794,000 of new capital was listed on the New York Stock Exchange. During the four years succeeding 1892, a number of the companies which had thus increased their capital took refuge under the protection of the courts. From 1873 to 1887, moreover, the experience of 1893 was duplicated twice."

* * *

American Methods. – At a meeting of the Yorkshire College Engineering Society, on Monday evening, Mr. R. J. Sloan, an old student, related his experiences in the United States, where he had stayed twelve months in order to obtain an insight into the methods in use in American engineering works. According to the lecturer, the best equipped machine-tool shops are found in the New England States. Most of the new shops used electricity at the time of his visit, but some had what he called a barbarous custom of employing naked arc lights, which greatly dazzled the eye. Comparing the shops of this country with those of America, he asserted that the worst shop he ever saw was in the States. Speaking on the question of masters and men, he said that an American master might start at seven in the morning, but he leveled up the day by taking it pretty easy in the afternoon. The American manager, or superintendent, as they called him, engaged all the men employed and sent them to the foreman, who could discharge a man at his discretion. It was not considered necessary to have been brought up as an engineer to become a manager. One shop he came across was managed by a man who had been a barber in Leeds. Foremen were more numerous in American shops than here—one to about every fifteen men —and they drove the men a trifle harder. The American workmen boasted much of their independence, and looked upon British workmen as something on a level with Russian serfs; but Mr. Sloan saw few evidences of independence among American workers. Their average hours were about 59 per week. Trades unionism was strongest in the West; in Chicago it was very strong. In some of the Eastern States it was very weak. One gang he encountered had a Norwegian foreman, and among them were a Dutchman, a Swede, an Irishman, a Frenchman, a German, and men of several other nationalities, and consequently there was no cohesion among them; each regarded the other as a foreigner. In conclusion, the lecturer compared American and British tools, and he advised all young engineers to pay a similar visit to his own to the States. In a discussion which followed. Professor Goodman said that half the shops in Leeds had now got American tools."—London Engineering.

* * *

A Brakeman's Lament. – The following is from a clipping sent to this office by a friend, and purports to be a letter written by a Texas brakeman to his mother. While the "poetry" is awful, the lamentations are pathetic, and may console others whose lot is hard—for it has been said that "misery loves company:"

I am braking on a road
They call the Cotton Belt;
And of all the grief that ever was
Has never yet been felt.

Now if you will kindly listen, ma,
I'll endeavor to explain
How we reached our destination
On one of these local trains.

We left the town of Tyler
One beautiful afternoon;
There being a wreck at Burlingame
Was why we left so soon.

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And of course we had our tonnage,
And a little excess, too,
For we had hardly reached the whistling board
When we had to cut in two.

While I was going up the hill
With the head end of the train,
The hind man was flagging
And, as usual, it began to rain.

We got our train together
And started off again;
The hog-head he got restless
And of several things did complain.

He said the air was sticking
And wasn't working right,
But the head man quickly told him
His machinery was too light.

We unloaded local
Every place along the line,
And to unload household goods
It takes up lots of time.

When we reached the town of Athens
It was getting close to morn;
We had been all night on local
And only thirty miles from home.

It being my first trip
I never worried much,
For down on the I. & G. N.
We never had no such.

Some may think it's pleasure,
Some may think it's fun,
To have a job of braking
On such a local run.

But I am here to tell you
When we got to Corsican
The whole crew were invalids—
Not one of us a man.

At last the captain shouted
In accents soft and sweet,
While we were taking water,
"You brakemen better eat."

Now that sounded very fitting
To us so tired and sore,
For this was the first refreshments
Since noon the day before.

When we had finished dinner
We hurried back again,
To find the busy yard crew
Had never touched our train.

Now to work the crew began
To get the train in line;
We had to switch the air ahead
And all the jacks behind.

The conductor got his orders,
And we had gone ten miles about
When the hog-head whispered softly,
"My air pump is now played out."

What can happen next, I wonder?
Then on top we took our stand,
For we had to spot the local cars
And make all stops by hand.

We left Hubbard City
Twenty minutes on to three,
Doubled into Mt. Calm,
Which wasn't enough, you see.

The conductor has his troubles, too,
In many different ways;
He uses a dozen pencils
In making out delays.

At last our trip is finished,
And each heart is glad, I know,
For we were just three days and nights
From Tyler to Waco.

Now after all the hardships
It is awful hard to think
The people call us rough-necks
And ask us why we drink.

Now if anyone thinks I am joking,
Come and try it for yourself,
For there is always a job of braking
On this here Cotton Belt.

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A Great Record.—With the headline, "Brown at the Top" the Burlington (Ia.) Gazette announces the "rumor" that Mr. W. C. Brown, Third Vice-President of the "Q," is to have "full charge of the Vanderbilt System." As reason for his success in life the Gazette says of Mr. Brown:

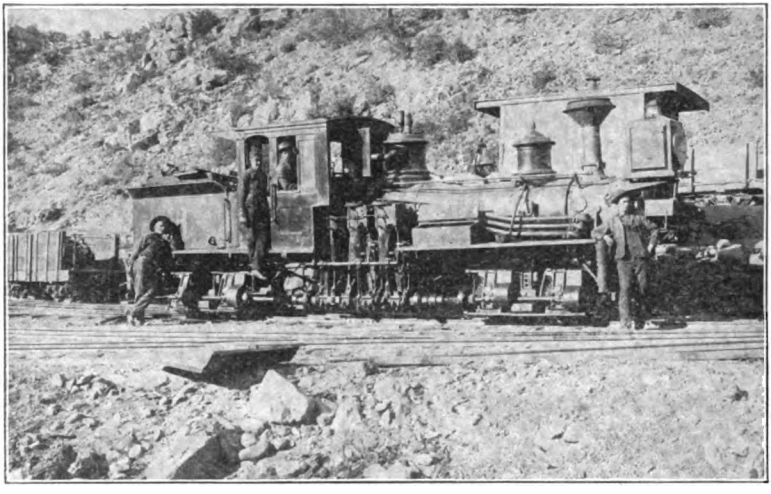
"He made his great hit with the C., B. & Q. by fighting the engineers' strike to a finish, and that without gaining the enmity of a single man among the strikers. His division was the pivotal point of the battle, and the one on which the strike was broken. His next hit, as general manager of the C., B. & Q. Southwest lines, was the presentation of a brief little argument to the joint committee of the national house and senate, asking that further time be given the roads for the equipping of their freight cars with automatic brakes and couplings. The time was granted, and millions were saved the companies."

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Double-Heading on the Decline.—"Through agreement with their trainmen and engineers the Union Pacific and the Atchison, Topeka & Santa Fe roads have abolished double-heading except in certain extraordinary cases," says Railway and Engi-

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neering Review. The agreement entered into is as follows: "With trains of over thirty cars, exclusive of cabooses, the practice of double-heading will be discontinued except as hereinafter provided. (1) Helpers may be used between the following points. (Here follows a list of points on the mountain division.) (2) Helpers may be run on any district when necessary because of storms, engine failures, to avoid running engines light, in moving engines to and from shops or from one district or division to another, provided the rating of the heaviest engine is not exceeded. (3) In case of accident to any engine consolidation may be effected with another train and the consolidated trains brought into terminal as a double-header if practicable. (4) When by reason of the acquirement of additional lines, changes in grade, etc., it becomes necessary, helper service may be established where the conditions are similar to those covered by helper limits as above provided.



A NARROW-GAUGE SHAY LOCOMOTIVE, ENGINE 3, GILPIN TRAMWAY CO., BLACKHAWK, COL.

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Narrow-Gauge Shay Locomotive.—A rather unique railroad is that of the Gilpin Tramway Company, running from the stamp mills at Black Hawk, Col., to the gold mines in the adjoining region. The gauge is 2 feet, and the grade runs from 3 to 5 per cent. At no place on the 40 odd miles of road can 200 feet of track be found without a curve.

The engines, being of the Shay geared type, built by the Lima Locomotive and Machine Works, Lima, Ohio, are very powerful and pull 21 empty dump cars weighing 7,000 pounds each at about 6 miles per hour. The engine shown in the illustration is one of five owned by the company. It weighs 20 tons, has cylinders 7x10 inches, and carries a steam pressure of 145 pounds.

The original "Armstrong" brakes are used but, as speed is not desired, wrecks and runaways are not of frequent occurrence. This road also bears the distinction of being a Brotherhood road, as every man in the engine service belongs to Rocky Mountain Lodge 77, B. of L. F.

A Mechanical "Spotter" on the Engineer.—A company is now being organized in Milwaukee to finance an invention which, its inventor claims, will prevent many of the wrecks and accidents which now affright a world with their grewsome record, when its use becomes general. This company will control in the United States the patent rights of the "railway chronograph," as it has been styled by its inventor, H. G. Sedgwick, formerly of Beloit, Wis., but now a resident of New York City.

The machine which is to do this wonderful work is but a small affair, an iron box about 12 inches square and three inches thick. It is devised to keep a record of the work of the locomotive to which it is attached and of its engineer.

The mechanism is such that it records on a tape every blast of the whistle, to-

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gether with its exact time and place; the speed of the train at every moment of time; the time and place any accident occurs; the speed approaching, the arrival, the delay, and the departure from any station; the number of miles and the amount of time consumed in switching at any station; when and where the airbrake was applied; how long any engineer is on duty, any and every trip; just where the locomotive was at any moment and what it was doing at the time; and how much steam it wasted through the "pop" or escape valve.

The device is entirely automatic and simple to a degree. It is attached to the engine just in front of the cab and over the boiler. Various levers project from the machine and these are attached to the parts of whose action a record is desired.

Inside the box of the machine is a self-winding clock, which records its time upon a tape that winds through mechanism, by punctured dots, one-tenth of an inch apart. Each dot represents 12 seconds of time. The tape is about one and one-half inches wide, and is always in motion. It is ruled off into seven columns, each one for a particular record, and designated respectively as the whistle column, the air column, the bell column, the pop or escape valve column, the time column, the one-tenth column and the engineer's punch column.

A rod from one of the levers is attached to the crossheads of the engine, and every time the locomotive moves one-tenth of a mile this makes a puncture in the one-tenth-mile column. By the distances between these points the speed of the train can at all times be determined. Another lever is attached to the bell, and at every stroke of the bell it makes a record dot on the tape in the proper column. The same is done in the whistle column, when the whistle is used; in the air column when the brakes are set and in the pop column when the escape valve is opened.

The last column is for the engineer's record. By means of a lever in his cab he makes a punch in this column whenever desired. He punches in the time of arrival at a station and his departures, as ordered in his rules. He can also mark any other occurrence that he wants to have recorded. For instance, the inventor declares that on one of the test trips on the New York Central railroad a jam nut dropped from the engine. The engineer made a record of it, and when Poughkeepsie was reached, 80 miles east, the place where the nut was dropped was computed from the tape, and the nut was found by a section man. The same device serves to keep record of the condition of the track. If the engineer notes a bad section in the track he makes a record of it and its position is easily determined on the tape.

From the time and one-tenth mile columns the place and time of the marks in the other column can easily be determined.

The tape is renewed at the end of every run and is preserved for record. It acts as a check on the engineer at all times, thus preventing his doing things which he might do if he did not know that the little machine in front of his cab kept an unerring record of his every action.

By watching the escape valve it records the amount of steam wasted in this manner on each run. On one run recorded by this machine recently it was found that in 88 miles this valve had been opened 794 times, a waste of almost six tons of coal. The record of the machine quickly caused a decrease in this needless waste of steam and power.—Milwaukee Sentinel.

* * *

Railroad Accidents.—Exchanges report accidents to have occurred recently as follows:

On the morning of March 13, 1903, a collision occurred between two passenger trains on the Nashville, Chattanooga and St. Louis Railroad, near Shellmound, Tenn. Five members of the crews were injured.

On the morning of March 14, 1903, a local engine collided with a freight train in the yards of the Chesapeake and Ohio Railroad, resulting in the death of four men. A heavy fog prevailed at the time.

On March 14, 1903, near Ripon, Wis., an engine on the North-Western Railroad jumped the track while rounding a sharp curve and rolled into the ditch. The engineer had his right arm broken and his left leg so badly crushed that amputation was necessary. The fireman and conductor received slight injuries about the head.

A passenger train and a freight train on the Galveston, Harrison and San Antonio Railroad collided March 14, 1903, west of Sierra Blanca. The passenger fireman and a negro tramp were killed, and the passenger conductor, mail clerk, and the freight fireman were injured.

On the morning of March 23, 1903, a passenger train on the Burlington Railroad ran into an open switch at Knoxville and collided with the rear of a freight

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train, badly damaging the engine and baggage car and instantly killing the engineer.

On the night of March 23, 1903, a passenger train on the Southern Railway ran into a rock slide in a cut which occurred just as the engineer blew the whistle for a road crossing near Toccoa, eighty miles north of Atlanta, Ga. A tramp was killed, the engineer had his arm broken and was severely scalded, and the fireman was badly bruised and scalded.

On April 1, 1903, a limited train on the Baltimore and Ohio Railroad collided with a freight train at South Chicago. The fireman, express messenger, porter, and one passenger on the limited train received slight injuries.

By the collision of a wild engine and a passenger train on the New York, New Haven and Hartford Railroad, an engineer and firemen killed and sixteen persons were injured.

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Increased Wages.—Based upon information obtained from press reports the following increases in wages are reported:

An increase in wages has been granted to the section foremen and section men in the employ of the Chicago and Eastern Illinois Railroad.

It is reported that the trainmen in the employ of the Northern Pacific Railroad have been granted an increase in wages ranging from 12 to 15 per cent.

It is said that beginning May 2d, the car builders, firemen, freight handlers, boilermakers, machinists and shopmen on the New Haven Railroad will receive an increase in their wages amounting to 10 per cent.

Engineers on the Erie Railroad are said to have been granted a 10 per cent. horizontal increase in wages.

An increase of 15 per cent. in wages has been granted by the Chicago Great Western Railroad to its conductors and trainmen in freight service.

The firemen on the Gulf, Colorado and Santa Fe Railroad have been granted an increase of 12½ per cent. in their wages.

Conductors, baggagemen, brakemen and switchmen on the Cincinnati, Hamilton and Dayton Railroad have been granted an increase of from 2 to 15 per cent. in wages. The engineers and firemen had previously had their wages advanced.

Announcement has been made that the Chicago, Burlington and Quincy Railroad Company has granted an increase in pay to its employes, averaging about 10 per cent., dating from March 1, 1903.

It is stated that the Southern Pacific Railroad Company will advance the wages of its trainmen in freight service 15 per cent. and those in passenger service 12 per cent.

The Kansas City Southern Railroad Company is said to have granted a 15 per cent. increase in wages to freight trainmen, and a 12 per cent. increase in wages to passenger trainmen.

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Honey Sweet and His Pa

By Ed. E. Sheasgreen

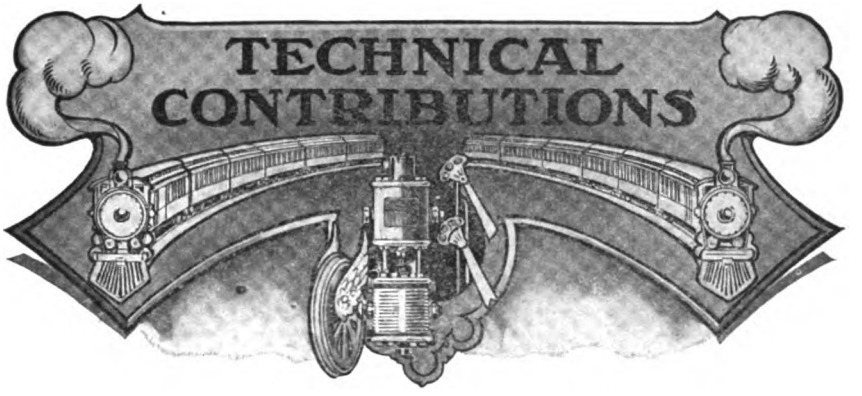
Th' other day, my pa tuk me
A-down to where th' ingins be,
A-makin' smoke an' drummin' loud,
An' where there's jest th' biggest crowd
Ov greasy men 'ats workin' there,
On my pa's ingin, everywhere.

An' pa put on his overalls
An' cap, and tuk a can he calls
His Mary Jane, an' got a wrench
From one th' fellers at th' bench,
An' tap-p-ped, an' screw-w-wed, an' fil-l-led, an' 'en
He telled some stories to th' men.

He telled 'em, too, I wuz his boy—
An' 'en pa an' his fireman, Pat McCoy,
Jest boosted me away up high
To my pa's seat, an' they stood by
An' called me a ingineer, an' said
To keep my peepers straight ahead.

Pat got some wotter so pa cud wash—
I laughed an' laughed to hear 'em josh—
But goin' home pa laughed at *me*
Cuz *I* wuz black—said ma might be
Mad—but she *wuzn't*. She gave me a treat
An' kiss, an' called me her "Honey Sweet."

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The Vauclain Four-Cylinder Compound Locomotive

SINCE the advent of the compound locomotive into this country, about thirteen years ago, so many have been built that the type is no longer regarded as an experiment. Yet in spite of this fact, there is a great lack of information as to the construction of these engines, and their advantages over simple engines; and it is the purpose of this article to explain the construction and advantageous features of the compound, and to indicate the nature of the work that these engines are doing.

The primary object of the compound is to save fuel, and it will first be explained how this is accomplished. It is well understood that, when the reverse lever of a single expansion engine is in full gear, either forward or backward, steam is admitted to the cylinder during almost the entire stroke; consequently exhaust takes place when the steam is at a high pressure, resulting in a waste of steam and frequent injury to the fire, as the fireman has good cause to realize. As soon as the engine is "hooked up," the valve travel is changed so that the supply of steam is "cut off" before the piston reaches the end of its stroke. The space behind the piston at the instant that "cut off" occurs, is filled with steam at a pressure almost equal to that in the boiler; and as this volume of steam endeavors, because of its pressure, to occupy as large a space as possible, it drives the piston before it to the end of the stroke, but in so doing it expands, and exhausts up the stack at a lower pressure than when the lever was "in the corner."

From what has just been said, it is evident that the steam is doing useful work while it is expanding behind the piston; and that it could continue to do useful work as long as its pressure was sufficient to move the piston. In a single expansion engine, the steam leaves the cylinder at such a high pressure that there is still power to do useful work stored within it; and in the compound engine this steam is conveyed to a second cylinder, where it drives a second piston, behind which it expands, thus utilizing the pressure which would otherwise be lost. More work is thus gotten out of a given amount of steam than could be obtained in a single expansion engine. The amount of work done may be said to depend upon the quantity of steam and the drop in pressure as it expands behind the piston. The single expansion engine requires a large amount of steam, and expands it through a short distance; while the compound engine uses a relatively smaller amount of steam and expands it through a greater distance; and hence, to do the same work, the compound locomotive uses less steam. This means that less water is evaporated, and consequently less coal is burned.

Every compound locomotive has at least two cylinders. Steam from the boiler enters first the *high pressure cylinder*, and there drives a piston in the usual way, the amount of expansion depending, as in a simple engine, upon how far the lever is "hooked up." When exhaust takes place the steam, instead of entering the stack, passes to the *low pressure cylinder*, which is necessarily made larger than the high, because the *volume* of the steam has been

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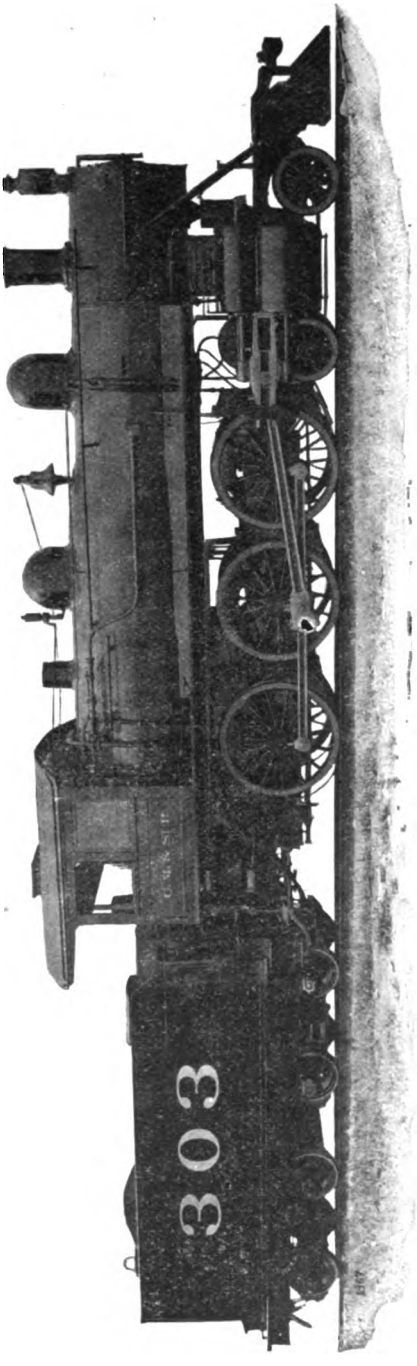


Fig. 1. External View of a Recent Vauclain Compound Locomotive

increased, and its pressure therefore reduced. After driving the piston in this cylinder and again expanding in volume, the steam exhausts to the stack. The blast is not as sharp as in a simple engine, but, as has been shown, the amount of steam used to develop a given amount of power is not as great in the compound as in the simple engine; and these locomotives are so constructed that the reduced pressure of steam at the exhaust is sufficient to keep the fire in good condition, so that there is no trouble in "keeping her hot."

The Vauclain Compound Locomotive, which it is proposed now to describe, and which is a product of the Baldwin Locomotive Works, was introduced in 1899, and since then nearly 3,000 have been built; there being more engines of this type in use than of any other compound. This type has four cylinders, one high pressure and one low pressure being placed on each side. The cylinders are placed one above the other, and the two piston rods on the same side take hold of a common crosshead, which is connected to the drivers precisely as in a single expansion engine. The absence of complicated starting gear in the shape of reducing or intercepting valves is one of the strong features of this machine, and apart from the cylinders themselves, there is practically no difference between a Vauclain Compound and a single expansion engine, the mechanism being exactly alike on both sides of the locomotive.

The special advantages of the Vauclain type may be summed up as follows:

First. The engine is more like a single expansion locomotive than any other form of compound in use.

Second. The parts are all extremely simple, and all complication is avoided.

Third. The arrangement is exactly alike on each side of the locomotive, resulting in the fact that the cylinder castings are interchangeable, and the same amount of power is exerted on each side for all points of cut-off.

Fourth. With the exception of the occasional use of the starting valve, explained later, the locomotive is handled in precisely the same manner as a single expansion locomotive.

Fig. 1 shows an external view of a recent Vauclain compound, and Fig. 2 is a front view of a similar locomotive. The high pressure cylinder is in this case placed on top, as is usually done where a four wheeled leading truck and single bar frame are employed. When a frame having double front rails is used, as is

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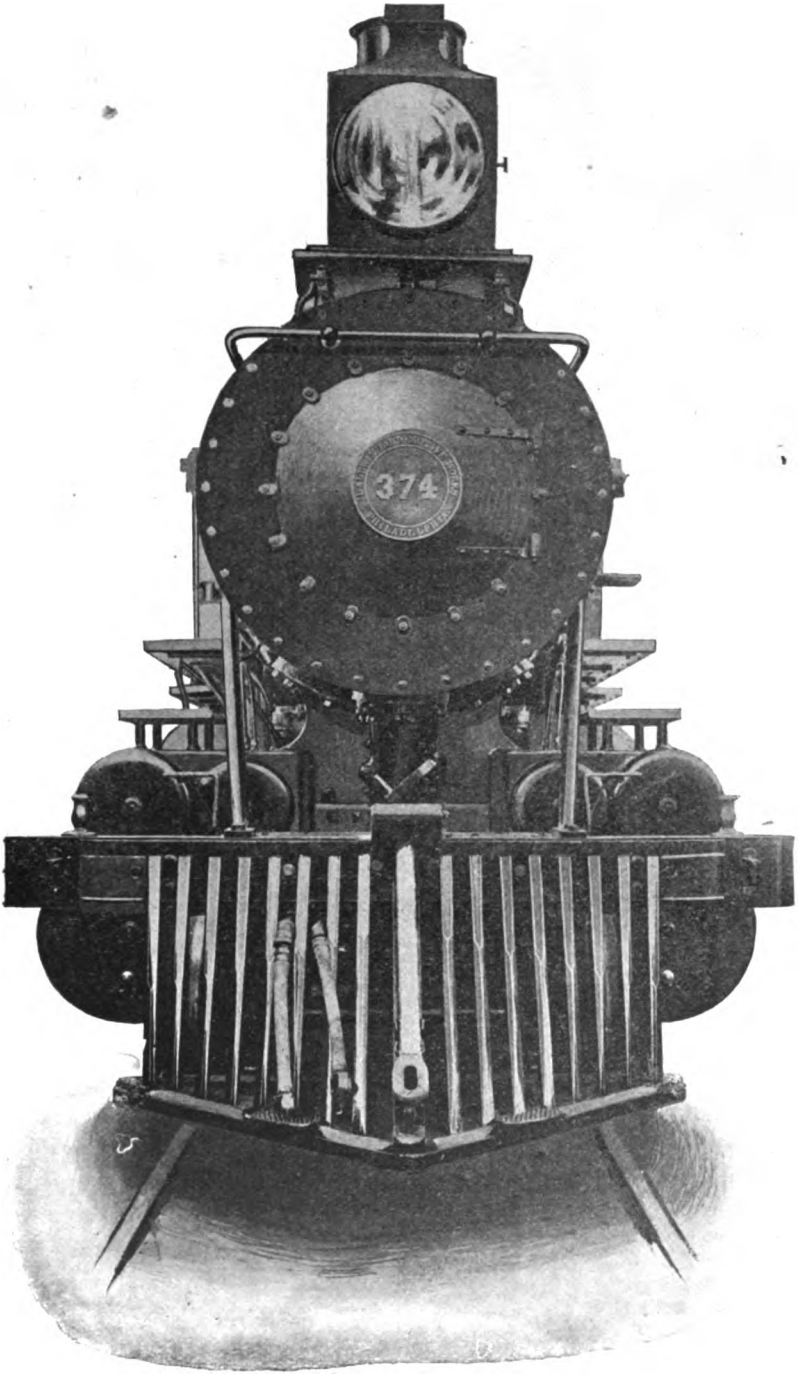


Fig. 2. Front View of a Recent Vauclain Compound Locomotive

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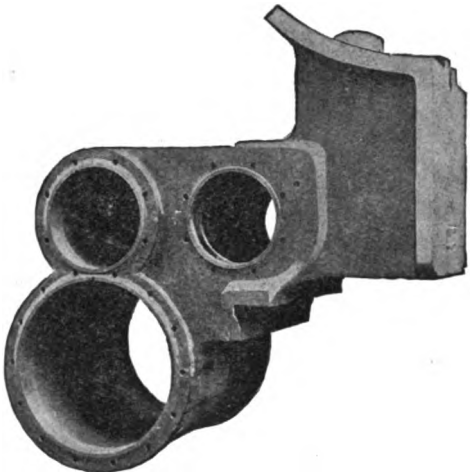


Fig. 3. Typical Cylinder Casting having High Pressure Cylinder on Top

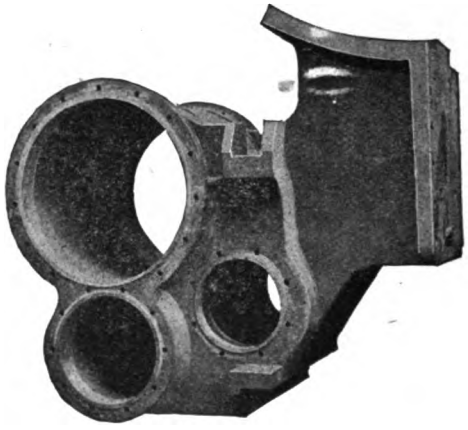


Fig. 4. Typical Cylinder Casting having High Pressure Cylinder Underneath

generally the case with a two wheeled leading truck, it is convenient to place the low pressure cylinder on top, although there are exceptions to this rule. Referring to Fig. 2, the front steam chest covers can plainly be seen between the two high pressure cylinder heads. For each pair of cylinders there is one valve, and it is of the piston type, its location being plainly shown in Figs. 3 and 4, which represent typical cylinder castings having the high pressure cylinder on top and underneath respectively. This valve, which is shown in Fig. 5, is hollow and is fitted with eight packing rings, and performs the double function of controlling the steam distribution to *two* cylinders, the piston type being the only form that can conveniently accomplish this result. The valve works inside a hard cast iron bushing, shown in Fig. 6, which is forced into the steam chest by means of a special machine, and has openings which correspond to the steam and exhaust ports in the cylinder casting. A sectional view through the steam chest, showing the bushing in place, is represented in Fig. 7. The steam chest heads are in posi-

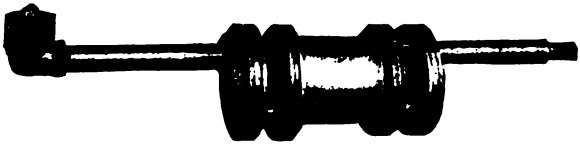


Fig. 5. Piston Valve

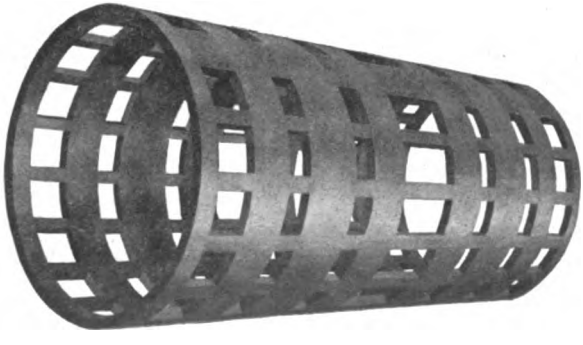


Fig. 6. Bushing for Piston Valve

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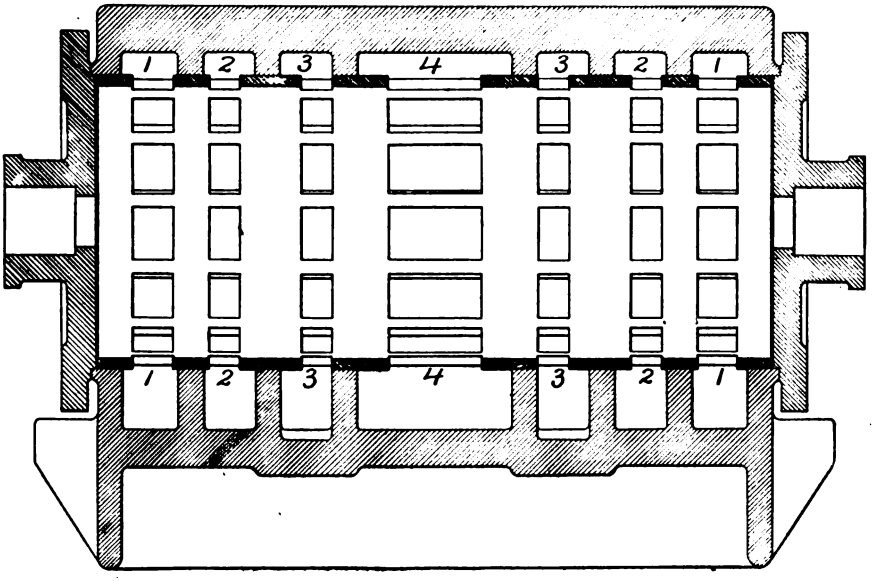


Fig. 7. Sectional View through Steam Chest, showing Piston Valve Bushing in Place

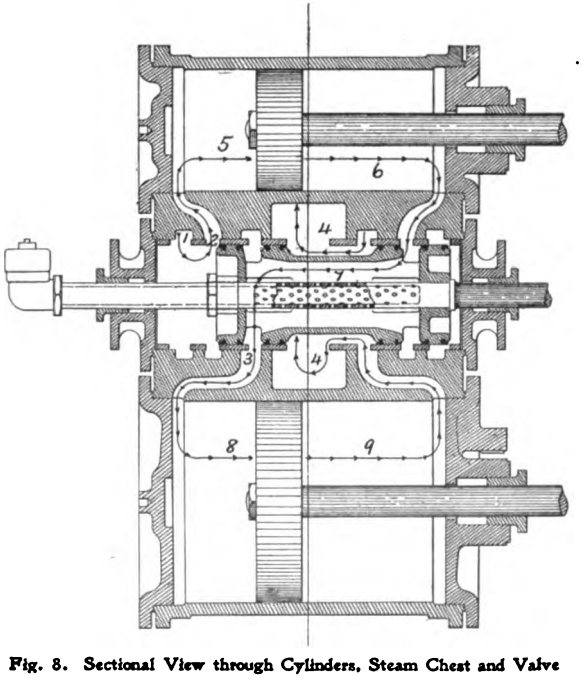


Fig. 8. Sectional View through Cylinders, Steam Chest and Valve

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tion, but the valve is omitted for the sake of clearness. The passages in the cylinder casting completely surround the bushing, and the openings in the latter are clearly shown. They are narrower than the passages in the casting, and are slotted out to give the correct port areas. Live steam from the boiler enters the steam chest through ports *1-1*, and passes to the high pressure cylinder through ports *2-2*. *3-3* are the low pressure steam ports, and *4-4* the final exhaust to the stack. The valve stems on recent engines have front extensions, as will be explained shortly, and this necessitates a stuffing box in each steam chest head, as shown.

Bearing in mind the arrangement of the openings in the steam chest, the reader is referred to Fig. 8, which is a section through the cylinders, steam chest and valve. The pistons are on the backward stroke, the front ports being open to steam and the rear ports to exhaust. Live steam from the boiler, entering at port *1*, flows through port *2* to the high pressure cylinder, filling the space *5* and driving the piston back. In the meantime the steam in space *6* is exhausting through the rear high pressure port, and passing through the hollow space 7 within the valve, enters space *8* behind the low pressure piston by way of port *3*, while at the same time the exhaust steam in space *9* is passing, as shown, into port *4* and thence up the stack. The arrow heads plainly show the course of the steam.

The use of the cavity within the valve is now clear. It not only provides a passage way for the steam on its way from the high to the low pressure cylinder, but also acts as a receiving space for the steam to occupy between the time of closing the high pressure exhaust and opening the low pressure admission. The whole arrangement is extremely simple, and with the assistance of the diagrams there should be no difficulty in understanding the course of the steam as it flows through the various passages.

Owing to the fact that the high pressure cylinders of a Vauclain Compound Locomotive are smaller than those of a simple engine of equal power, it is necessary, in starting its maximum train, to admit live steam from the boiler direct to the low pressure cylinders in order to get the pull required to start promptly. To do this a "starting valve," illustrated

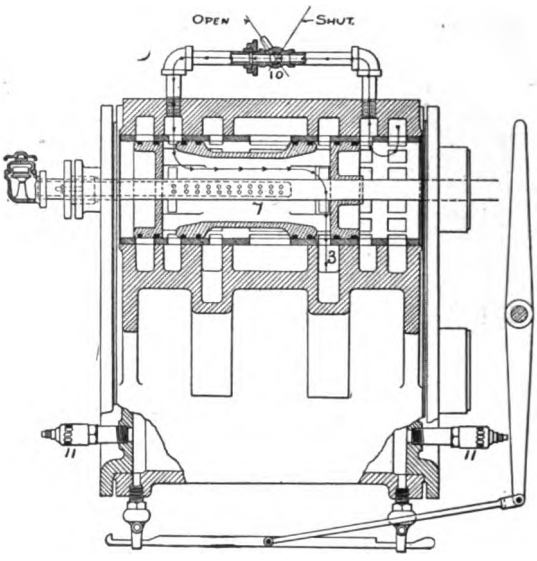


Fig. 9. Showing "Starting Valve"

by Fig. 9, is employed. This valve, shown at *10*, is placed in a 1-inch pipe which connects the front and back high pressure steam ports. When the valve is open, steam flows through this pipe and, passing through cavity 7 in the main valve, enters the low pressure cylinder through port *3*, as indicated by the arrow heads. The starting valve is operated by a lever conveniently located in the cab. It was formerly the practice to connect this valve with the cylinder cock rigging, as shown in Fig. 10, which is a transparent view of the cylinders and steam chest. This arrangement, however, has now been abandoned in favor of the one shown in Fig. 9, which also shows the cylinder cocks and the rods that operate them.

The starting valve should *never* be open when the speed exceeds five miles an hour, as using it injudiciously is injurious and results in an excessive consumption of fuel and general dissatisfaction. When about to stall on a grade, the starting valve may be opened, the additional power obtained frequently enabling the engine to reach the top of the hill.

In order to relieve the vacuum created in the cylinders when the engine is drifting, relief valves must be provided. As shown in Fig. 10, these are mounted on the steam chest, and open into the ports leading to the low pressure cylinder. In recent engines, especially those employed in high speed service, a hollow extended valve stem is used, as shown in Fig. 9.

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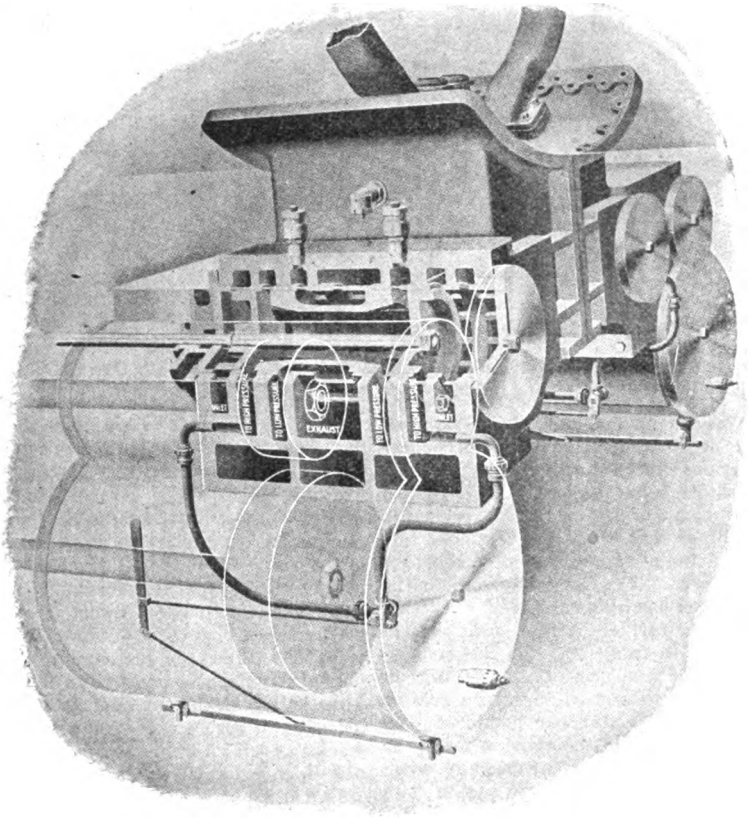


Fig. 10. Transparent View of the Cylinders and Steam Chest

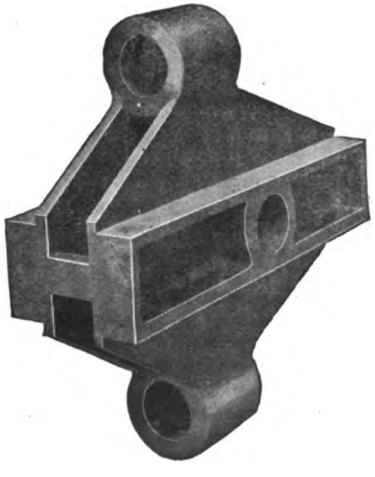


Fig. 11. The Crosshead

When the throttle is open, the steam pressure keeps the relief valve closed; but when the engine is drifting this valve is open, and air enters the steam chest through the holes in the valve stem. Air relief valves, shown in Fig. 10, are tapped into the cylinder saddle, and open into the live steam passages; and water relief valves, *11-11* (Fig. 9) are placed in the low pressure cylinder heads.

The crosshead, shown in Fig. 11, is a steel casting with wearing surfaces covered with a layer of babbitt. The holes for the piston rods are tapered, and the rods have large nuts on their outer ends, which bear against the lugs on the crosshead. The rods are of iron, and the pistons are of cast iron or cast steel, and are made as light as possible. Each piston has two cast iron snap rings. An external view of the cylinders, with crosshead and guides complete, is shown in Fig. 12. The

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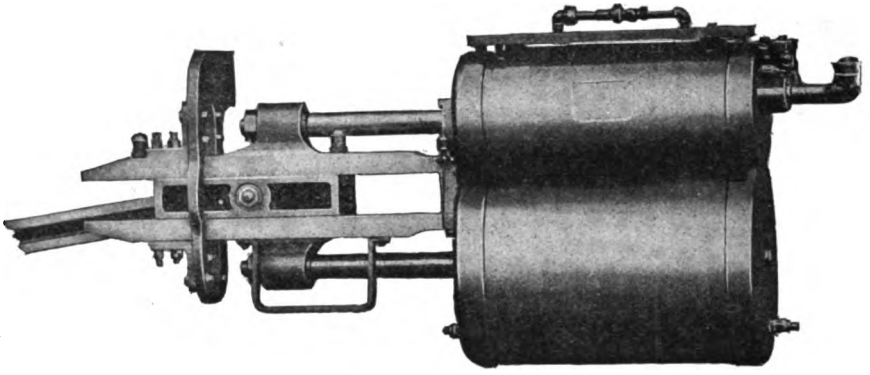


Fig. 12. External View of the Cylinders with Crosshead and Guides Complete

shape of the crosshead and the arrangement of the guides, guide yoke, etc., of course depends upon the type of engine and various other conditions, but the illustrations are fairly typical.

The compound ordinarily consumes from 15 per cent. to 25 per cent. less fuel than a single expansion locomotive of equal power. This is partly due to the fact that, as has been explained, the steam is expanded farther than in a simple engine; and in addition, the slower consumption of fuel results, especially in large narrow firebox engines, in a greater evaporation of water per pound of coal burned. These facts combine to make the engine more manageable, especially when heavily loaded, than a simple engine; and the fact that the reverse lever can be put "in the corner" without tearing the fire to pieces, is a result which greatly favors the compound. PAUL T. WARNER.

♣ ♣ ♣

Care of Slide Valve Feed Valve.

Wherever it is possible the regular attention in the way of cleaning and oiling which, in common with other parts, the slide valve feed valve ought to receive, should be given by the air brake repairman. For various well-known reasons it does not receive such attention. As the work is simple, quickly performed and needs only the tools always at hand, the following instructions are given in the hope that engineers and firemen may be induced to aid in reducing the general neglect of this part. The knowledge gained and improved service will be found an ample return.

The work should preferably be done with pressure pumped up so as to blow out all loose dirt and that the valve may be tested after cleaning.

First, close the train pipe cut-out cock under the brake valve and place the brake valve handle in emergency position. Then take off the large cap nut *53*, Fig. 1. As the nut comes off be careful not to drop spring *58*, the pivot button on its end or piston *54*. Further, be *very careful* at all times with piston *54* and its attached valve. Both must fit accurately, and the least bruise will likely interfere seriously with correct operation, if not entirely prevent it. After the piston and its valve have been cleaned, place them where they can not possibly be damaged—in your pocket is a good place—and when they are back in position keep one hand in front of the opening until the nut is caught, to guard against the possibility of air leakage blowing them out.

On removing the piston, examine the end of its stem for any indications of pounding. The forward movement is stopped by the end of the piston stem coming against the projecting portion of flush nut *52*, but with a valve in good order the contact will be so light as to cause little more than a bright spot. Even after many months of service the tool marks at this point on the stem should yet be plainly seen. Any indication of hammering shows that the piston had not been working freely, as it should. This is generally caused by a bruise on the piston. Such will be indicated by a bright spot. The high place can easily be scraped down with a pocket knife, but owing to the importance of not removing any more metal than will just relieve the binding, so as to avoid increasing the leakage past the piston, it is best to have the repairman remedy such a fault. It should be repaired soon as such a valve will not regulate the train pipe pressure accurately at all

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times, and may result in the collar breaking away from the end of the piston stem.

Using waste and any light oil, clean the piston, its parts and the chambers where they work. Then, with the parts out, place the brake valve in release and running positions several times so as to blow out any dirt or threads of waste, taking equal care to remove any of the latter from the piston and its valve.

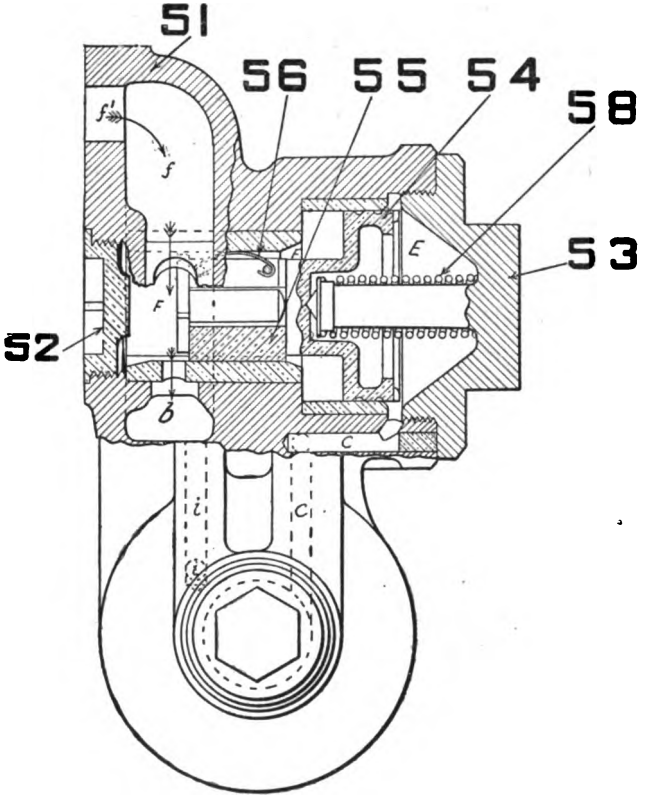


Fig. 1. Slide Valve Feed Valve. Section Through Admission Port f', f and Slide Valve and Piston. Right Angle to Fig. 2

If there is rust on the stem of cap nut *53*, scrape it off with a knife and always place a little oil on this stem, both to prevent corrosion and guard against wearing spring *58*. Also, clean the threads of cap nut *53* and the faces where it makes a joint with the body, placing a little valve oil on the threads and joint.

Now, put a little valve oil on the face of the supply valve *55*, the spring *56* above it and on the piston *54*, but not enough on the latter to fill the grooves. Too much oil on the piston may interfere with correct pressure regulation until the surplus is blown off and such surplus will pass on to ports and parts where no oil is wanted, as it causes gum. Replace the parts and draw cap nut *53* tightly as it must not leak.

With the brake valve yet in emergency, remove the small cap nut *61*, regulating valve *59* and its spring *60*. See Fig. 2. Take care not to lose the small parts. If a wrench is required up to the last turn in removing cap nut *61*, be very careful when the latter finally comes off so as to avoid bending the inner stem of regulating valve *59*. A bent stem may cause a leaky valve which will result in too high train pipe pressure. In fact, this will follow any material leakage past this valve, when seated, or cap nuts *53* and *61*.

Clean the regulating valve *59* and its seat, using oil and a small piece of wood where the gum adheres closely, blow out the ports by the use for a few seconds of release and running position, then replace

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the parts *dry* and free from lint. Do not draw cap nut *61* so heavily as to strain its threads. This is all that is ordinarily required, as such oil or dirt as find their way to the brass diaphragm *57* do no harm. However, if after this the feed valve does not work better than before or satisfactorily, the diaphragm portion may be removed. With brake valve handle in emergency position, take off

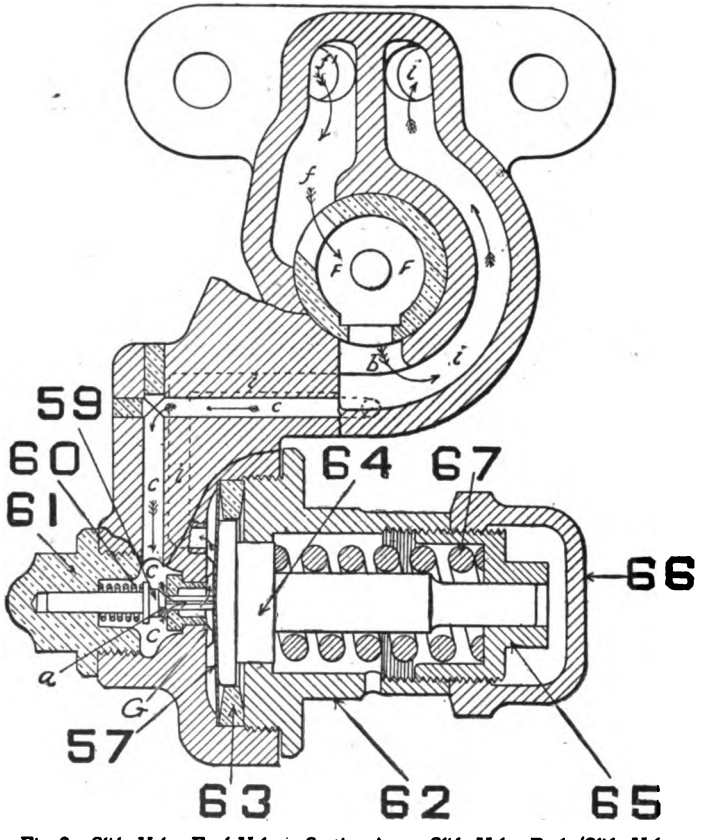


Fig. 2. Slide Valve Feed Valve. Section Across Slide Valve Bush (Slide Valve Removed) and Through Regulating Portion

spring box *62*, which will give access to the remaining parts. Avoid bending the diaphragm, which consists of two thin disks of brass. The only fault to be looked for is a possible binding of the diaphragm spindle *64* in the ring *63*, spring box *62*, regulating spring *67* or regulating nut *65*. Look for any bright spots indicating such binding and remove the cause. A little oil on the enlarged part of the spindle *64*, to which the arrow points, is beneficial.

With these parts out, some useful and instructive tests can be made by first moving the brake valve handle to running position. To render them more accurate the angle cock at rear of tender should be opened and left so, the cut-out cock below the brake valve remaining closed. The object in emptying the train pipe is to guard against possible back leakage past the cut-out cock.

With the brake valve in running position, any leakage past the rotary valve, brake valve leather gasket (main reservoir into chamber *D* above the equalizing piston), the feed valve case gasket, making the joint between the brake valve and feed valve, or past supply valve *55*, Fig. 1, will show at the small port to the right of and a little above that through which the stem of regulating valve *59* projects. It is shown in Fig. 2 near top of diaphragm *57*, being port *j*, leading eventually to the train pipe. Any leakage past the regulating valve *59* can be noted where its stem projects.

If there is leakage out of the train pipe

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port first referred to, place the brake valve handle on lap position. If the leakage continues it is past either the rotary or the brake valve leather gasket. Tighten the four brake valve bolts, particularly the two on the main reservoir connection side. If it stops with the valve on lap it is either the supply valve *55* or the feed valve case gasket. Tighten the nuts securing the feed valve to the brake valve. This should always be done after cleaning the feed valve.

Unseating the regulating valve *59* by pushing against its stem will discharge the air from chamber *E* outside of piston *54*, Fig. 1, cause it to move outward, compress spring *58*, draw the supply valve *55*, Fig. 1, from above its port and cause a strong blowout of the train pipe port mentioned and the equalizing discharge port through which the train pipe pressure exhausts in a service application. As soon as the regulating valve *59*, Fig. 2, is allowed to close the leakage past piston *54*, Fig 1, will raise the pressure in chamber *E* up to that of the main reservoir on the opposite side, allow piston spring *58* to shove the piston and its supply valve inward, closing the port below the latter and stopping the discharge at the two openings previously mentioned.

In this you have observed the regular operation of the feed valve, your thumb acting in place of the diaphragm, against which the stem of the regulating valve *59* rests. The blow at the equalizing discharge port was owing to the flow into the train pipe raising the pressure more rapidly under than above the equalizing piston, being the same as frequently causes the similar blow following release when using the brakes on the engine and tender only.

Return the brake valve handle to emergency position before replacing the diaphragm parts. First put in the diaphragm, follow with the ring, then the remaining pieces together, drawing spring box *62* firmly. As the regulating and check nuts, *65* and *66*, Fig. 2, were not touched, the pressure adjustment should be the same as before, but if not right it can be made so. When regulating a feed valve always have cut in the full train pipe on locomotive and tender and the driver brake bleeder open. The latter is to represent the leakage of an ordinary train. After every change in adjustment make a 10-pound service reduction and return *direct* to running position. The use of release position while regulating the valve is liable to cause wrong adjustment.

Where a locomotive is fitted with the Combined Straight Air and Automatic Engine and Tender Brake and the straight air has no gauge, its reducing valve, which is merely a slide valve feed valve bolted to a pipe bracket, can be cleaned, lubricated, tested and adjusted in the following simple manner: Do this work on the feed valve attached to the automatic brake valve and adjust it at 45 pounds by the gauge. Then blow off all pressure, exchange the feed valves, pump up the pressure, do the same work on the feed valve taken off from straight air and adjust it at 70 pounds.

F. B. FARMER.

In the Instruction Car.

It's a wonder that air brake instructors don't change their form of instruction work to suit changed and improved conditions. Their system of doing business ought to be progressive. I remember when I was a kid, firing in the yard, the first Westinghouse instruction car gave us a call and the way the man in charge explained the air brake was exactly the necessary way then. He started at the air pump—only briefly describing it—and followed the course of the air to the end of the story, but he didn't stop at any point long enough to thoroughly explain the operation of its apparatus—he couldn't—didn't have time if he would cover the whole system of engine and car equipment which was necessary first, as lots of engineers, even, were more ignorant of the ground principles of the automatic brake than some of our student firemen are now.

Every road running out of Corning—that's our northern terminus—has either an air car or an instruction room, and I have listened to all of their instructors lecture, and they seem to do it the same old way I was just speaking of.

Now our instructor on the Air Line never gives a general lecture unless there is some new point in air brake, signal or steam heat practice to be taken up, or unless a whole gang of new firemen have been "drafted." He knows that the men on this road understand the general "scheme" of the air brake; those that don't are given personal instruction; but it's another thing to get the best—the required—results in its operation or maintenance, and whenever any railroad men come to the car they are given something to think about that hadn't occurred to them before. Every employe is given a

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list of questions which he will be examined from, each year, and each year the list is revised progressively. The men are expected to ask the instructor for information regarding any of the questions they may be uncertain about; and it is interesting to listen to the arguments that come up among the fellows sometimes.

"I see," said the instructor the other day, "that our general foreman of the inspectors at this point is in the car. I have something here that will interest him—and others, later. It's an order for repair material." And he handed around the following letter:

Conway, feb. (etc.)

Mr. John R. Collins M C b

dear Sir

pleas send 1 New 10 ich packin ring 1 in coach 31 silner is wore of on both ends and will not meat air blous thro all so pleas send 11 ich angel cox for uner the coach and 1 single hoe Sam is wore out on coach 31

Elijah Barnett

car inspector.

The instructor translated it: "He tells the M. C. B. that the piston packing expander ring in the brake cylinder of coach 31 has *both ends* worn away, and he thinks so because the ends of the ring won't meet and the packing leather leaks through. 'Lige' also wants one 1-inch cut-out cock, to replace the one in the cross-over pipe, which is leaking, and he wants one signal hose, stating that 'same is worn out, on coach 31.'

"Laugh—that's right—but Elijah isn't alone in his ignorance; there are lots of men on the road who have told me that the two angle-cocks on the end of a coach do not have their handles placed in the same position—as to whether they lay parallel to, or crossways of the pipes—when open or shut. Such a statement would be correct only for the fact that there are not two angle-cocks at the end of a passenger equipment car.

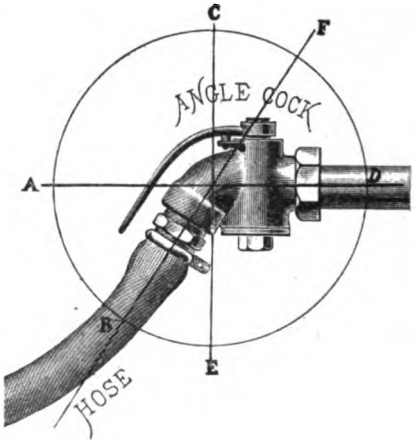
"Now, learn to talk air brake right, and missionary among the rest. There is only one place where an *angle-cock* is found, in all of the compressed air equipment, and that is at the end of the brake train pipe. An angle means a sharp turn, or a corner bend. Look here."

The Instructor drew a chalk picture of an angle cock on the board, as shown on this page.

"A circle is divided into 360 equal parts called *degrees*," he explained, "and from *A* to *C* or *E* is, of course, 90 degrees, and their lines meeting at the center of the circle form *right angles* or squares; from *A* around to *D*, either way, is 180 degrees, etc.

"The body of the angle-cock is screwed onto the horizontal train pipe, of which *AD* is its center line; the other threaded opening into which the hose nipple is screwed, turns downward, and if a straight piece of pipe was screwed into it, its center line would be *BF*.

"Most of the angles used in mechanics are of 90 or 45 degrees, and if the line *BF* crossed the circle line half way between *A* and *E*, we would have a 45-degree angle-cock, and that is what it is usually termed, as it only lacks a few



degrees of it; and the fittings on the ends of the signal train pipe are usually called 45-degree elbows. Between engine and tender and at the engine pilot the brake train pipes end with just such elbows, only of a larger size for the brake hose to screw into, cocks not being used at those points. Instead of 'angle-cocks' on the ends of the signal train pipe, there is a straight-way stop-cock in the pipe line just back of the '45' elbow, or angle-fitting. Also, in the brake train pipe on the engine there is a straight-way 1-inch stop-cock near the cylinder- saddle, so that if the engine should strike a cow, or anything, that part of the train pipe containing pressure would not get broken off.

"I took one of our best air repairmen and we went out to Conway to investigate the cylinder of that coach. Now, here's a chapter that has a bearing on your driver and tender brake cylinders. We took out the brake piston and found the cylinder walls bright and clean and no oil in the cylinder, but a very little at the bottom; packing leather new and

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in good condition except that it was only oily where it had rubbed the bottom of the cylinder, and it still had a few of the 'crimps' that form when a leather is first put in.

"Then Lige loosened up. He had never had to put in any packing leathers before the one on coach 31 played out, and he had forgotten the instructions regarding it, so when he put in the new leather he didn't soften it first, and he just rubbed a little black oil on the cylinder walls with his hand; a bucket of cylinder grease was in his shanty, but none of the gang knew what it was for—had been greasing their shoes with it. Well, that piston leaked so bad the conductor wouldn't stand for it, and Lige had to do something, so tried another leather, with no better results.

"Now, one of the Branch engineers at Conway is regarded as an air expert, and he certainly did pass high on his examination—so well posted that I didn't think it worth while to ask him anything so commonplace as about piston packing. Well, Lige went to him for help out of his difficulty and when they removed the piston this engineer paid no attention that the small amount of oil had all run down and the cylinder was mostly dry. The expanding ring was laying back snugly inside the cupping of the leather and at once attracted the attention of our eagle-eyed brother, who proceeded to humiliate Elijah.

" 'Now that's a *fine* job of fitting a packing ring, at the shops—over an inch opening between the ends—no, let's see; I believe a piece has been broken off. And you have had it down a number of times and didn't notice it!' Then they took out the ring and hammered it on the inside, bringing the points closer together, but totally destroying its expansive worth. It was this engineer that was responsible for Elijah's requisition.

"My assistant noted the trouble at a glance. He stuck a new leather in some warm water and worked it till it was rather pliable and then rubbed plenty of black oil into it. Then he put it on the piston in place of the old one, and replaced the old bent-in expanding ring with one of proper form he had brought with him—per order. We inquired for cylinder grease and it was brought forth and smeared thinly on the cylinder walls, and the groove under the edge of the follower plate where the leather turns over was filled. When the piston had been *carefully* replaced and everything connected, we got a Branch engine to couple-in the air and test her—wasn't a simmer—perfectly tight.

"The expanding ring is not like a *packing ring;* it is to hold the packing leather close against the walls of the cylinder until enough air pressure has entered to make the joint tight, and it is not necessary for the ends of the ring to meet. But it must be expansive to do its work right and that wide spread makes it rather hard to keep in place while entering the piston into the cylinder and at the same time so entering the new leather that its edges don't catch and turn back.

"If you close up the ring you might as well leave it out. Sometimes the ring works out of place after the piston has entered; to make sure of that, after the piston has been pushed nearly all in move the cylinder head around in a circle—if it will only go part way around, the ring is partly out.

"To have a piston that don't leak, the ring must be properly expansive, the leather not worn through, and kept pliable by cylinder grease or *frequent* oilings of black oil; the cylinder should be clean, of course, and the follower bolts should be tight—but be very careful in tightening those bolts—it's the easiest thing in the world to break the thin follower plate." WILL W. WOOD.

Evaporation of Water and Making of Steam.

Steam is evaporated water, and this evaporation is brought about by raising the temperature of the water to 212° F. The degree of heat at which water is converted into steam varies with the atmospheric pressure. As the air pressure is much less as the altitude increases, and as the atmospheric pressure is greater as you descend below the surface of the earth the boiling point varies accordingly. The air pressure is placed at about 15 pounds per square inch, and the boiling point at 212° F., or 100° C., at the level of the sea. At the top of a high mountain the boiling point is found to be a number of degrees below the standard at the level of the sea, and so descending into a deep mine the boiling point would be found to be in excess of 212° F., or 100° C.

The pressure of steam escaping from water boiling in any open vessel will be equal to the atmospheric pressure by which it is surrounded. At the sea level this is computed to be the same as the air pressure, that is (14.7) about 15

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pounds per square inch. This is an obvious fact, otherwise the steam could not rise from the water.

As the nearest point of contact to the fire is the hottest in a vessel containing water, the steam rises in bubbles to the surface of the water, which there explode and the steam is released. The hotter the fire the more rapidly the change takes place and the supply of water would soon become evaporated unless replenished.

In an open vessel the temperature of the water will not rise above the boiling point, for the steam escapes into space, and the pressure on the water is the same all the time. In a confined space, as in a locomotive boiler, the temperature of the steam and water rises as the pressure increases. At 30 pounds pressure (absolute) it is 250+° F. At 90 pounds pressure (absolute) it is 320+° F. Therefore, the temperature of steam in a confined space varies with the pressure the same as it varies in an open vessel to suit the atmospheric pressure.

In its natural state steam is invisible. This is what might be properly termed true steam. An example of this, which is old, yet familiar to us all, is in a rapidly boiling tea kettle. Nothing will be seen close to the mouth of the spout, but a short distance away a white cloud, which is improperly called steam, is to be seen, and the invisible part between the vapor and the spout of the kettle is the steam. The white cloud which one sees is really vaporized steam, or the steam returning by cooling to its natural state as water.

Steam is a gas and has the natural quality of gas to expand and fill the surrounding space. This expansibility of steam is employed in securing its economic use. In the locomotive, by the use of links, and a lever to shift their relation of position and motion to the rocker arm and eccentrics, the travel of the valve on its seat is changed to meet the requirements of the moment by a long or short cut-off or steam admission. If a cylinder 24 inches long was filled one-half its length with steam at 90 pounds pressure per square inch and then was allowed to expand so as to fill the cylinder its entire length the volume of the steam would be doubled, but the pressure would be reduced in an inverse proportion, and in this case would be 45 pounds per square inch. As the volume increases the pressure decreases, and vice versa.

If an engine with a 26-inch piston travel, or stroke, was cutting off at 18 inches with 120 pounds absolute pressure per square inch we have the following to find the pressure after expansion:

120x18=2,160. 2,160+26=83+pounds absolute pressure.

If the lever be changed so that the valve cuts off at 8 inches, then: 120x8=960.

960+26=37 pounds absolute pressure.

Thus the absolute pressure multiplied by the length of stroke at which the steam is cut off, and the result divided by the full length of the piston stroke, will give the final absolute pressure.

The difference between absolute pressure and effective pressure is the atmospheric pressure, and by deducting it from the absolute pressure the effective pressure can be determined.

A loss of heat to steam involves a loss of power. This loss occurs by radiation, convection and conduction. Conduction is seen in the passage of heat along a metal bar, one end of which being placed in a fire the other end will soon be found becoming warm and shortly will be too hot to touch with the hand. Convection is observed in water being heated in a vessel, as atoms nearest the fire become warm they expand and, therefore, being lighter than the particles of water above, they rise to the surface and are replaced by colder and heavier particles from above. Likewise, when the air becomes heated from any cause near the surface of the earth it rises and is replaced by the cooler air from above. Radiation is transmitted by rays from any heated body. An example of this is the giving off of heat by the sun to the earth.

The degree to which different substances conduct heat varies greatly. If a stoneware rod was placed in the fire, instead of one of metal, the farther end of the rod would not heat very much. For this reason nonconducting, or as near nonconducting substances as possible, are used to cover the boiler, cylinders, and other parts that are exposed to heat loss in any of the foregoing ways as far as practicable. Wood, asbestos, or wool felt covered with a jacket of Russia iron, are the commonly used materials.

It is evident that as the pressure continued to rise in a boiler it would finally go beyond the strength of the boiler metal and there would be an explosion, and to guard against this boilers are provided with safety valves or, as they are commonly called in locomotive practice, "pops." In deciding on what pressure a boiler shall carry it is the ordinary practice to take one-fifth of the tensile strength of the steel boiler plate This tensile strength may vary from 50,000 to

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60,000 pounds per square inch of cross-section, but is somewhat less across the grain of the iron than with it. This difference between the working pressure of a boiler and the point of pressure at which the plates would rupture gives a wide margin of safety, in addition to the safety valves. This margin is, however, reduced by the seams in the boiler and, as time goes on, by corrosion from the elements in the water, and the wear and strains which come from actual service.

There are two safety valves used on locomotives so that should one become inoperative from any cause the other will take care of the excess boiler pressure. These valves are placed on the steam dome in direct connection with the steam storage space of the boiler, so that the pressure in the boiler is exerted on the under side of these valves. They are retaind on their seats by springs which are set to resist the steam pressure on the under side of the valve, to the maximum pressure to be carried in the boiler. When the valves open steam escapes until the boiler pressure is several pounds below the maximum, and is a waste of steam. While it can not be avoided at times, yet the continual shrieking of the pop valves on an engine is as good an indication of poor firing as is the lack of the maximum steam pressure on a free steaming engine under ordinary conditions. Ordinarily, these valves are sealed, or locked, to prevent their being changed by any one except those authorized to change them. When an engine is doing much better work than other engines of the same class over any piece of road, a test of the steam gauge will usually reveal the fact that the engine is carrying too high a steam pressure. To avoid the noise made by the escaping steam, some railways have adopted a method of muffling the sound by allowing the steam to pass through wire screens inside the cage surrounding the pops, or by plates filled with small holes, also by a large pipe to which are a number of small L-shaped pipes, the intent being to divide the escaping steam into small jets and deaden the sound caused by the outrush when undivided.

The steam in the boiler is conveyed to the cylinders by means of the throttle valve, dry pipe, steam pipes and steamways cast in the cylinder saddle to the steam chests, and thence, through the medium of the slide valves, passes into the cylinders from which it escapes through the exhaust ports and exhaust ways in the cylinder saddle, through the nozzles and out of the smokestack to the atmosphere. In this passage from the boiler to the atmosphere it does the work for which it was created.

The throttle valve is located in the steam dome on account of convenience for connection with the cab lever, and also because the dome, being at the highest point of the boiler and where the temperature of the steam is the greatest, is theoretically supposed to hold less water in suspension, and also to be least liable to carry water from the boiler to the cylinders. When a locomotive is working the amount of steam in a dome would supply the cylinders for but a very brief period of time. The supply is constantly being renewed from below, and as the time is so very limited for the escape of any water held in suspension by the steam a certain amount of it is continually being carried to the cylinders. Over pumping or foaming of the water in a boiler may be caused by oil or alkali substances in it. The water expands far beyond its normal condition and, being lighter from expansion, passes out with the steam into the cylinders, where it has a bad effect on the valves and pistons. Foaming water is dangerous also from the fact that it shows a fictitious water level in the gauge glass and the gauge cocks that should not be relied upon too much as being safe. The water sinking from a high to a low level when the throttle valve is closed is an indication of foaming and, if the engine is equipped with a blow-off, it should be used freely, and where the feed water is ordinarily pure the water in the boiler will soon resume its normal condition. In sections of the country where the water is impregnated with alkali foaming is an ever-present evil. The throttle valve is a double-end disc or round valve, the lower end of which is the smaller to admit of its being placed in position. The steam pressure being under the smaller end of the valve and on top of the larger end aids in keeping the valve on its seat, so that it will not open too easily, yet it opens very easy when compared with the old type, a slide valve very hard to open when under full boiler pressure.

When a throttle is opened steam enters the dry pipe under both ends of the valve into the dry pipe. If the dry pipe is too small the steam will be transmitted too slowly to the cylinders and would become what is termed *wire-drawn*, or if the dry pipe is too large there would be too much steam left in it to be used after the throttle was closed, which would be undesirable

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in doing short work, or in spotting an engine on the turntable or in the roundhouse. The throttle valve is connected to a rod that is attached to a bell crank, which is fastened to the throttle pipe. The throttle stem is attached to the lower arm of the bell crank at one end, and to the throttle lever in the cab at the other, this lever being placed in convenient reach of the engineman so that the throttle will always be under his easy control.

W. L. FRENCH.

Talks With an Air Brake Instructor

By E. G. Desoe

Dialogue No. 17—Train Air Signal.

Instructor.—I want to take up with you today, in detail, the operation of the valves used to operate the train air signal on an engine and car. Can you name the different parts of this apparatus on an engine?

Student.—Reducing valve, signal valve, signal whistle and signal line piping, which extends to the forward end of the engine and rear end of the tender. Hose connection at the forward end of engine and rear end of tender, also hose connection between the tender and engine. Stop-cock in the piping at the forward end of the engine and rear end of the tender, and gauge attached to the signal line, which is located in the cab.

Instructor.—Very nicely. Can you name the parts on a car?

Student.—Piping extending from one end to the other with stop-cock at either end and hose connection. A car discharge valve, located over the door at one end of the car, a cord attached to the car

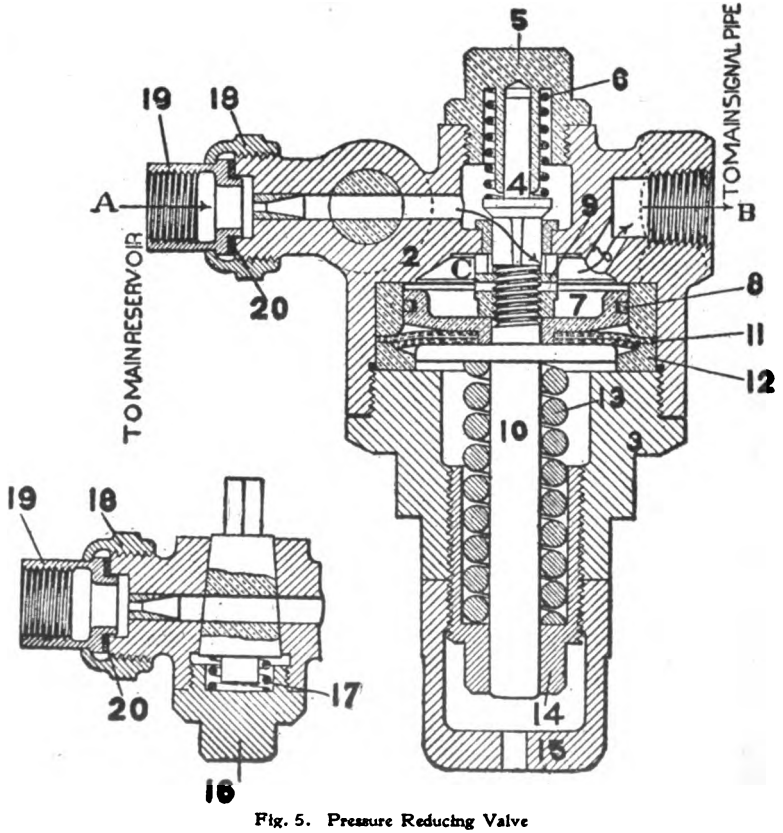


Fig. 5. Pressure Reducing Valve

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discharge valve and running the entire length of the car, and a cut-out cock in the pipe connecting the car discharge valve with the main signal line.

Instructor.—Where is the reducing valve located?

Student.—In the cab.

Instructor.—What is its duty?

Student.—To reduce the main reservoir pressure of 100 pounds down to 40 pounds, the pressure used to operate the train air signal.

the same at all times. Under the piston and diaphragm is a heavy spring, called a regulating spring, *13* in the drawing. This spring has a tendency to force the piston and diaphragm up. The tension is adjusted by the regulating nut *14*, so that when there is less than 40 pounds pressure of air on top of the piston it will move it up, but when the pressure is 40 pounds it will be held down. The stem of the supply valve *4* rests on top of the piston, and is held in contact with it by

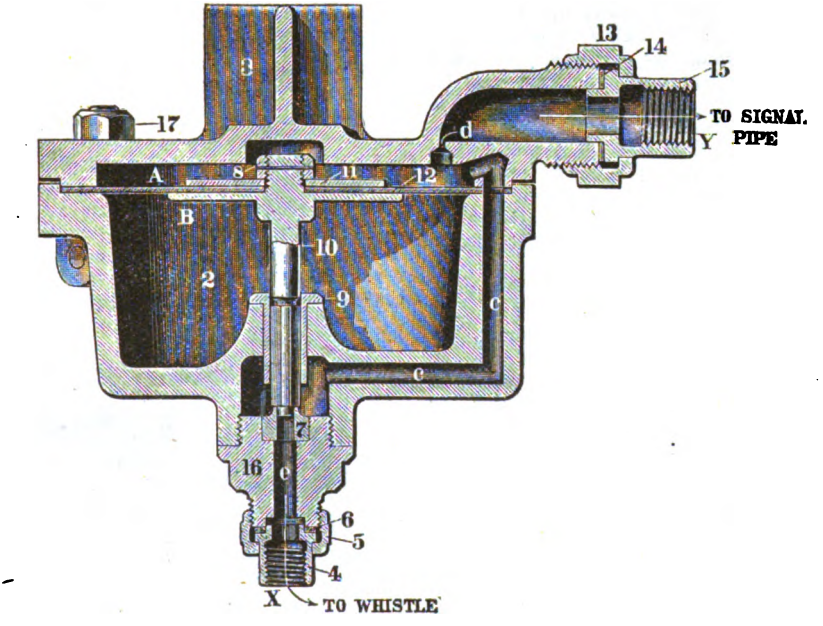


Fig. 4. Signal Valve

Instructor.—Can you explain how it operates to do this?

Student.—No, I do not understand how it operates.

Instructor.—Fig. 5 is a sectional view of one of these valves and will help you to understand its operation. Air from the main reservoir enters the valve through a pipe ⅜-inch in diameter connected at *A*, and passes through a small port 1-16 inch in diameter, then through the port in the cut-out cock and into the chamber containing the supply valve *4*, so that in this chamber there is full main reservoir pressure. Communication to the signal line piping is established through a ⅜-inch pipe connected at *B*, and a suitable port leading from the chamber above the reducing valve piston 7 and the diaphragm *11*, so that the pressure in the signal line and this chamber are the supply valve spring *6*. No air can flow from the main reservoir to the signal line when the supply valve is seated and, therefore, whenever 40 pounds is obtained in the signal line it acts on the piston and moves it down against the regulating spring, causing the supply valve to be seated and preventing the pressure from increasing. When the pressure is reduced below 40 pounds the regulating spring will move the piston up, thereby opening the supply valve, and air will again flow to the signal line until again the pressure is 40 pounds.

Student.—Then this reducing valve operates similar to the old style feed valve attachment with the '92 model brake valve?

Instructor.—It operates on exactly the same principle. Can you tell me the duty of the signal valve?

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Student.—It is to control the flow of air to the whistle.

Instructor.—Do you know how it does this?

Student.—No, I do not know how it operates.

Instructor.—This sectional cut, Fig. 4, I think will help you to understand it. This valve is located outside of the cab, under the running board. Connection is made to the upper opening from the signal line, and from the lower opening to the whistle. It is composed of two chambers, *A* and *B*, which are divided by the diaphragm *12*. Air enters the upper chamber through the port *d*, and the lower chamber through port *c* and past stem *10*, which has a snug fit in bushing *9*, so that the air can not enter the lower chamber rapidly. The stem *10* is attached to diaphragm *12*, and its lower end forms a valve by seating on valve seat 7. The normal position is with this valve seated so that air is prevented from flowing to the whistle. The signal is operated by a quick reduction of the signal line pressure, which causes the pressure to first be reduced on top of the diaphragm. The greater pressure on the under side, in chamber *B*, then moves the diaphragm up, and with it the stem *10*, permitting the air from the under side of the diaphragm and the signal line to flow to the whistle, causing a blast, and at the same time reducing the pressure in chamber *B* below the pressure in chamber *A*, and the diaphragm and stem *10* are moved down, thereby shutting off the flow of air to the whistle. Only a small portion of the stem *10* fits bushing *9* snugly, while just below its upper surface a cylindrical groove is cut in the stem and its lower end milled in triangular form, so that when the stem is moved up air passes freely from chamber *B*. The length of the blast is proportional to the reduction made in the signal line.

Student.—The car discharge valves are for the purpose of making the reduction in the signal line pressure, are they not?

Instructor.—Yes, that is right, and from this cut, Fig. 3, you will see that it is composed of a valve, *3*, which is held to its seat by a spring and signal line pressure, that is, the branch pipe from the main signal line pipe is connected to the chamber containing this valve so that there is always the same pressure here that there is in the signal line. The upper stem of valve *3* is extended so that it rests against the lower part of handle *5*, and holds it against the stop pins *6*. With this arrangement, no matter which way the top of handle *5* is pulled, it will cause valve *3* to be unseated and permit the signal line pressure to escape to the atmosphere through port *a*.

Student.—What causes the whistle to blow just as the handle of the brake valve is moved to full release position to release brakes.

Instructor.—This is due to the signal line being charged to the pressure carried in the main reservoir, and when the pressure is reduced in the main reservoir the air in the signal line flows back into the reservoir, causing a reduction in the signal line pressure.

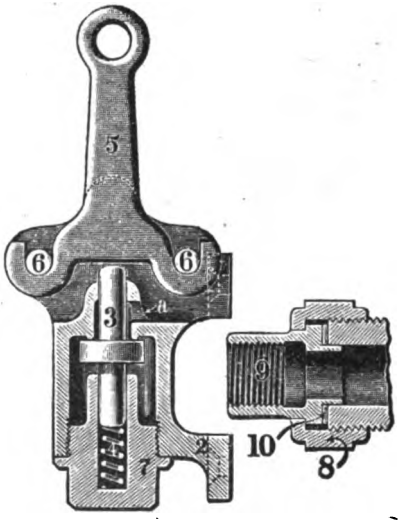


Fig. 3. Car Discharge Valve

Student.—What would cause the signal line to be charged to the same pressure as that of the main reservoir?

Instructor.—The supply valve in the reducing valve not seating, due to either dirt lodging on the seat, or the piston and diaphragm being gummed so as to prevent its moving freely. Of course the regulating spring may not be adjusted properly, but this is not likely to be the case.

Student.—I have been told that if the piston was gummed it would prevent the pressure being regulated properly.

Instructor.—That is right; the pressure is likely to be too high or too low with the piston gummed. That is, if the regulating spring is adjusted so that just 40 pounds is obtained in a short time there may be more than 40 pounds in the signal line, and later, without changing the adjustment, there may be less than 40 pounds. A reducing valve that

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has been regulating the pressure all right does not require a change in the tension of the adjusting spring (unless the check nut *15* has become unscrewed), when the proper pressure is not maintained, but the moving parts need cleaning, or the supply valve needs to be ground in.

When running over the road suppose the whistle blows when the brake is not being released, and the whistle cord has not been pulled, what defect does it indicate and where would you look for it?

Student.—I should say there was a leak in the signal line and I would look over all the signal piping, beginning at the reducing valve, also the stop-cock on the piping on the front end of the engine and rear end of the train.

Instructor.—With engine attached to train, what defects would cause no pressure to be indicated on the gauge, or the pressure too slowly obtained, when just before attaching the gauge indicated 40 pounds?

Student.—I should say that the small port in the reducing valve may have become stopped up, or that there was bad leakage in the signal line piping on the train.

Instructor.—How could it be readily ascertained if the small port you refer to was stopped up?

Student.—By removing the supply valve cap nut *5* and ascertaining if there was a supply of air coming from the main reservoir.

Instructor.—That is right, and now suppose that you found the air did not flow freely, or that there was no flow of air from the main reservoir, what could be done to remedy the trouble?

Student.—I do not know, unless it would be to disconnect the pipe connecting the reducing valve with the main reservoir at the union on the reducing valve and punch out the small port with a piece of wire.

Instructor.—In order to do that it would be necessary to shut off the pump and let all the air out of the main reservoir, which would cause considerable delay in most cases. If the supply valve and spring are removed a small piece of wire may be inserted and the small port punched out with very little, if any, delay. The cut-out cock on the reducing valve must be open in order to do this. On a great many of the brooms that are used the wire which binds the corn to the handle is just the thing to use for this purpose.

Student.—Will the whistle always sound when the signal line is charged to the proper pressure, and the cord is pulled and air discharged from the signal line?

Instructor.—No, not always, for there may be trouble with the signal valve or whistle. When it is known that a proper reduction is made and the whistle does not sound it should first be ascertained if the trouble is in the whistle or signal valve. This may be ascertained by removing the entire whistle from the end of the pipe, and then when a proper reduction is made note if any air escapes from the pipe; if there is an escape of air, then the trouble is with the whistle. It probably needs cleaning, or the bell needs adjusting. If no air escapes, then the trouble is either in the signal valve itself, or the pipe leading from the signal valve to the whistle is broken off or disconnected, for it is not at all probable that it is stopped up. If this pipe is found to be all right, then the trouble is in the signal valve, and no remedy can be applied on the road without consuming considerable time. The adjusting of the signal valve requires a good skilled mechanic.

Student.—What is the trouble when the whistle sounds only twice and the cord is pulled four times?

Instructor.—The most probable cause is that the cord was pulled too rapidly, or was not held down the proper length of time. The car discharge valve may not have opened as it should, or the trouble may be due to the signal valve not being adjusted properly.

Student.—What is the trouble when the whistle sounds more times than the cord is pulled?

Instructor.—This trouble is generally due to the adjustment of the signal valve. The proper working of this valve depends largely on the fit of the stem *10* in the bushing *9*.

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Movement of Trains

By H. A. Dalby

The Staff on the Santa Fe.

In the Magazine for October, 1901, page 556, we gave a description of the Electric Train Staff as used in a number of places to control the movement of trains over a short section of track where the ordinary method of using train orders is insufficient or impracticable. Its use is usually at large terminals where trains from a number of divisions use the same track for a short distance, but it can be applied to other conditions as well. The principle of the system is that no train can pass over the section of track so governed unless the engineer has a staff, which is a piece of steel from ten to twenty inches in length, in his possession. The stations at either end of the section are equipped with electrically connected instruments, so that when a staff is taken from the instrument at one end it must be placed in the instrument at the other end of the section or returned to the one from which it was taken before another staff can be removed. In other words, only one staff can be out of the instruments at one time, and as no train can move without having a staff, there can be but one train on the section of track at any time. This provides an absolute block for trains in both directions.

This, in brief, is the staff system, and an interesting application was made some two years ago on twenty-three miles of the Santa Fe between Trinidad, Col., and Raton, N. M. On this piece of track, which crosses the Raton Mountains, dispatching trains was found to be extremely difficult and results were not satisfactory. It is now divided into seven single track "blocks," and each is operated by the Electric Train Staff. No orders are issued to trains, the sole authority for movement being the possession of a staff together with the proper signal indication. Each block section is operated independently, and the staff authorizes the train to move to the next staff station, where, if another block is to be entered, another staff is necessary. Trains are under the control of the dispatcher, but without the necessity of delivering orders to them. Orders are issued to the operators who make the necessary arrangements for their execution.

It is interesting to note the equipment of this twenty-three miles of track with the staff, special signals and some interlocking, in order to accomplish this result.

The staff may be placed in a pouch and attached to a crane at the side of the track, so that it may be taken by the engineer, he throwing off the staff which was given him at the last station. This exchange can be made at thirty or forty miles per hour.

Signals.—The semaphore is the standard signal and there are five forms or combinations in which it is used, each having a distinct meaning according to the requirements of its location, although standard indications and practices are maintained. The different forms or combinations are as follows:

1. Home (or "stop") signal (red arm) and caution signal (green arm) on same post; the home signal above.
2. Two home signals on the same post.
3. One home signal, two positions.
4. One home signal, three positions.
5. Two home signals on the same post and a dwarf signal at the base.

The night colors are red for "stop," green for "caution," and white for "proceed."

There are separate signals for east and west bound trains and one of these five forms is located at each point where signal protection is necessary. For three-position signals the arm is inclined downward for "proceed" and upward for "caution."

The first combination is used at a station where there is only a passing siding, a signal being erected for trains in each direction. A train approaching the station finding both arms horizontal or a red light above a green will stop and enter the siding. If the red arm is dropped and the green arm is horizontal the train may proceed on the main line to the staff station and may or may not receive the staff. If both arms are dropped or two white lights are shown the train may proceed at speed expecting to receive the staff. It will be observed that the operator can, by means of these signals, hold a train for the arrival of another, either on the main track or siding.

The second combination is used for the protection of two diverging main line routes, either at a junction point or for the use of a cross-over from east to west-

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bound track, the upper arm being for the more important route and the lower for that of lesser importance.

We may say here that in addition to the seven single track sections operated by the staff there is one piece of double track, and it is between two of the single track sections. No orders are issued on double track and the signaling will be explained later.

The third form of signal is an ordinary one-arm home semaphore and is used to protect a single switch, the indication being horizontal for "stop" or inclined downward for "proceed." One of the points at which this form is used is the entrance to the double track section going east. In this direction, on double track, the "positive" block is maintained, only one train being allowed in the block at one time. This is for the reason that the grade is descending. In the opposite direction the fourth form of signal is used to govern the entrance to the double track section, and here, on account of the ascending grade, the "permissive" block is used. The fourth form of signal, being capable of three positions, can indicate "stop," "proceed" or "caution." These, it will be remembered, are *block signal* indications only, the track being double. The semaphore in the horizontal position indicates "stop," inclined downward "proceed," the block being clear, and the upward inclination "proceed with caution expecting to find a train ahead." The staff is not used on the double track section.

The fifth form of signal is used where two main line routes are to be governed and it is also desirable to provide a means of bringing a train to the staff station on the main track without giving a "proceed" or high speed signal. The top arm when clear gives the indication to proceed on the main line and expect to receive the staff. When the next lower blade is dropped the train may proceed to the route of second importance. When the lowest or dwarf signal indicates clear the train may proceed on the main line to the staff station and may or may not receive the staff. This is the same as the second form with the addition of the dwarf signal.

At three stations there are interlocking plants which include a number of switches.

Permissive Staff.—Ordinary movements authorized by the staff are "absolute;" that is, only one train is permitted in a section at one time. This is so far modified as to permit, in certain sections and in the direction in which the grade is ascending, the admission of more than one train in the same direction. This is accomplished by means of an attachment known as the "permissive" feature of the system. In the staff instrument there is a receptacle which contains six tablets or tickets. There is also a "permissive" staff. When it is desired to allow a second train to pass into a section the operator removes the permissive staff, uses it as a key to unlock the box and delivers a tablet to the train. Another tablet can be issued to the next train, if another is expected, and so on, the last train taking the permissive staff, together with any tablets that may remain. By the use of these tablets, together with the permissive staff, it will be possible to admit eight trains without the section being clear. By means of the interlocking between the two instruments, no staff can be issued from either until the permissive staff and *all* the tickets are returned to one instrument or the other.

The grades are such that the permissive staff is used in only one direction in any one section so that when it is carried to the end where its use is prohibited it is necessary to return it. The next train, therefore, instead of taking an ordinary staff, carries the permissive staff and tablets to the end where they can be used. In such a case they serve as an "absolute" staff. The shape of the permissive staff is slightly different from the absolute so that they can be easily distinguished.

There are only two stations where the delivery of the permissive tablets or staff is accompanied by a clear signal. At all others the signal is held at danger, the tablets or staff constituting a clearance. The delivery of an absolute staff is always accompanied by a clear signal. The permissive staff is only used by instruction from the dispatcher.

When two or more engines are used on one train (and in some cases there are four) only the engineer of the leading engine carries the staff, but the others are required to know that he has it. Should the leading engine leave the train, or a change in the arrangement of engines take place the staff must be transferred to the proper engineman.

Conditions differ so materially that each signal or combination of signals has its own distinctive meaning and each is explained in a circular of instruction issued to employes. It will be seen, however, that regular practice, as regards signal instructions, is followed.

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Questions and Answers

The Westinghouse Air Brake.

Answers by F. B. Farmer.

149. Fitting Pump Packing Rings.—"In answer to question 144 in the March number, you say that in fitting pump packing rings the piston grooves should be trued up to the rings. Do you mean to file them until the rings will fit?"—*P. R.*

Answer.—No; the piston grooves should not be filed for the reason that the good fit of rings in grooves, which is necessary to obtain satisfactory results, can not thus be obtained.

The best method in making such repairs is to have the piston grooves trued up to the rings in a lathe. If this is not possible, then file the rings to the grooves, but leave one machined side on each ring. In applying the rings to the piston place the machined side of each away from the piston face the ring is nearest to. This will insure one ring having a true groove bearing for either up or down stroke of the pump.

This method, fitting the rings instead of truing up the grooves, generally, if not always, has another undesirable feature. As rings wear thin they bear on less of the groove faces, leaving a shoulder on the surfaces covered by the new rings when they are entered flush with the piston. As it is necessary that they may be able to enter the grooves to this point without binding, the rings will have to be filed a little thinner at the inner edge than over the remainder of the groove bearing. As will be seen, this necessitates a little filing on the side otherwise to be left as it came from the machine, presuming the faces left by the parting tool were given a finishing cut, as should be done.

The longest and best service is obtained by truing the grooves to the rings, using a lathe.

150. Pump Governor Leakage.—"Referring to the answer to 147 on page 417 of April, you say that the vent port in the pump governor should be the standard size so as the pump will not have to do more work than it should. Please say whether a leaky ring in the governor piston will not waste air and make the pump work faster. Also, tell how to test for leakage past the ring so as to tell it from steam leakage. Both come out at the same opening."—*X.*

Answer.—Yes, leakage past the governor piston ring will have the same effect as an enlarged vent port. Test for such leakage as follows:

Pump up the pressure until the governor acts, take off the governor check nut, open the pump drain cocks, close the throttle as tight as possible, quickly unscrew the governor regulating nut one turn, or a little more, and then note whether there is any discharge at the governor waste opening. Unless the pump throttle is leaking badly, and the stem of the governor steam valve is a very loose fit, all discharge at the waste opening will be that of air which has leaked past the governor piston packing ring.

All modern governors have the vent port, and with such it is desirable to have the least possible leakage past the ring.

Be sure to proceed in the order given, when making this test, and after it is completed readjust the governor. The purpose in slacking up on the regulating nut is to insure a strong flow of air to the governor piston for a sufficient time to determine the leakage past it.

151. Air Gauge Test.—"How often should the air gauge be tested, and how should it be done?"—*R. A. K.*

Answer.—There are two air gauge tests which should be made regularly. The easier of the two is the one which the engineer should make every trip. It consists of placing the brake valve handle in full release position, when no car brakes are connected, and noting whether the two gauge hands indicate the same pressure, as they will if correct. If they do not, then one or both are wrong. The main reservoir hand is the one most liable to be right. If they stand over three pounds apart the gauge should be reported.

While, as a general rule, the gauge will be found correct when the hands indicate the same pressure with the brake valve handle in full release, yet this is not always so. This fact and the other regrettable one that all engineers do not regularly make the foregoinig test and report errors that it indicates, renders it very desirable that all gauges be tested every thirty days by connecting to the train pipe a gauge known to be correct and comparing it with the engine air gauge, first with the brake valve handle in running position and then in full release.

The common method of connecting this test gauge is by means of the hose coup-

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ling at the rear of the tender, a similar one or a special fitting being attached to the test gauge. The special fitting referred to is one having two adjustments so the test gauge can be coupled to the signal hose for the purpose of determining the regulation of the signal reducing valve and, by means of a little vent which can be opened when desired, the operation of both reducing and signal valves; also, the action of the whistle.

It is best to test the air gauge in place as it sometimes happens that a gauge correct when off the engine is not so when in use. It is important that the test gauge be vertical—that is, as it would stand on a locomotive or when it is being tested—when the comparison is being made. Otherwise it may not indicate correctly.

* * *

The New York Air Brake.

Answers by J. P. Kelly.

136. Brake Valve Blowing in Release Position.—"What is the matter with a New York engineer's brake valve when it blows in full release position, at the exhaust port, but stops blowing when the handle is moved to running position?"—*J. A. S.*

Answer.—When the handle is in release position no air should escape at the exhaust port *O* if the vent valve *180*, on the end of piston *104-A*, and the main slide valve *114-A* are tight.

As port *O* is open to the atmosphere, through cavity *P* and exhaust port *C*, when the handle is in running position, the fact that the blow ceases proves that vent valve *180* is tight, and that main slide valve *114-A* is leaking.

A leak of this kind is due to the fact that the face of slide valve *114-A* has a groove worn in it by the small cut-off valve *110*, which, in running position, allows air to blow over the bridge in the seat, from the train pipe, into exhaust passage *C*, and thence to the atmosphere.

137. Rebound of Piston in Duplex Air Pump.—"When my duplex pump is working rather fast I notice a rebound, for a short distance, of the low pressure piston. Can you throw any light on the cause?"—*H. A. H.*

Answer.—When the pistons rebound at the end of their strokes, it will usually be found that there is considerable gum in the ports and air passages, which permits a high terminal pressure to be accumulated in the end of the air cylinder that can not be readily discharged through the gummed ports, and that, in consequence of this inability to escape, reacts on the air piston, causing it to "rebound," or move back quickly a short distance. A leaky intermediate discharge valve will also cause the piston to rebound, and this is most likely to be the cause of rebound of piston.

138. Brake Setting When Sand Blowers and Air Bell Ringers are Used.—"Why is it that the brakes will creep on once in a while when the sand blower is used?"—*J. J. O'B.*

Answer.—Possibly because the sand blower and bell ringers use air faster than the pump can furnish it; but probably it is because the governor is sluggish in its action, and does not permit the pump to start to work so promptly as it should, after shutting off steam from the pump, and thus the sand blower is able to reduce train pipe pressure, along with main reservoir pressure, sufficiently to set the brakes. A leaky train pipe in addition to the above would aggravate the trouble considerably; and so would a sticky excess pressure valve, provided the handle of the brake valve was in running position at the time the sand blower was used.

139. Spring in Packing Rings.—"What is meant by 'spring' in a packing ring?"—*C. S. H.*

Answer.—The spring in a packing ring is the amount of resistance which the free ends offer to being compressed, while being put into their respective cylinders, and may be judged somewhat by the distance the ends of the ring stand apart when out of the cylinder.

Packing rings are used to make movable air tight and steam tight joints; and in cases where it is desirable that the friction of the moving piston be reduced to a minimum while at the same time it be entirely free from leakage, as is the case with triple pistons, the amount of spring which the packing ring has is an important consideration.

It is the "spring" which keeps the ring out against the wall of its cylinder as the latter, and the ring itself, wears away.

140. Proper Time to Move Handle of Brake Valve to Running Position.—"In order to get excess pressure in the main reservoir, the handle of the brake valve must be carried in running position, and sometimes when the handle is moved to this position from release the brakes apply on the engine and tender.

"Isn't there a way for manipulating the brake valve so as to carry the handle in running position without setting the brakes?"—*H. E. T.*

Answer.—Excess pressure is necessary to release brakes promptly, and to re-

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charge auxiliary reservoirs quickly, and, while brakes are released, to feed the train pipe leaks, and prevent the brakes from applying in case the pump does not start off to work promptly after each time the governor stops it.

When brakes are released on trains of ordinary length, say 15 or 20 cars, if the handle of the brake valve is moved back to running position before the main reser- equalization between the main reservoir, all become equalized in pressure throughout the train, the brakes on the engine and tender will not apply; but if the handle remains in release position until equalization between the main reservoir, train pipe and auxiliaries has taken place, then if the handle be moved to running position, and there be a leak in the train pipe, it is likely that some of the brakes will commence to stick.

This is because communication between the main reservoir and the train pipe is cut off until the pump has pumped up the excess pressure, when the excess pressure valve will lift, and allow air to feed into the train pipe to supply leakage and keep the brakes off. Here it may be seen that a dirty gummy excess pressure valve would aggravate the trouble of sticking brakes under the conditions here considered.

When the train is very long, say it consists of 50 or 60 cars, it is necessary to allow the handle of the brake valve to remain in release position quite a long while to insure the release of all brakes, especially those on the rear of the train, and when this is done the front auxiliaries on the train charge up higher and quicker than do those on the rear; so that if the handle of the brake valve is returned to running position before the train pipe pressure is equalized throughout, the rear auxiliaries continuing to feed up out of the train pipe, and direct communication between the train pipe and the main reservoir being momentarily cut off, and excess pressure not yet pumped up in the main reservoir, the pressure reduces in the front end of the train pipe, and naturally a few of the front triples will operate, and the brake apply.

This trouble will be more pronounced the larger the main reservoir capacity, and the higher the excess pressure carried, but to avoid it, let the handle remain in release position until both gauge hands move up together and approach close to 70 pounds, then move the handle to running position, and there will be no trouble on account of sticking brakes.

On a very short train, say 3 cars or the light engine, if main reservoir capacity is large and excess pressure carried is high there is danger of overcharging the train pipe and auxiliaries, or charging them up above 70 pounds, if the handle of the brake valve is moved to the release position to release the brakes and left there any length of time; and then if leakage exists in the train pipe the brakes are likely to stick on account of pressure reducing in the train pipe, and the governor still holding the pump stopped until the train pipe pressure reduces below 70 pounds.

In a case of this kind release the brakes in the running position, and no trouble will be had, or return handle quickly to running position after going to release.

* * *

Locomotive Running and Repairs.

Answers by W. G. Wallace.

74. Ports Not Covered by Valve.—"Can the ports of an engine having lead be covered with the valve when the engine is on dead center?"—*C. F. S.*

Answer.—Lead is the amount of opening of the steam port when the piston is at the beginning of its stroke. Lap is the amount of the valve that extends over the outside edges of the steam ports when the valve is in the center of its seat. If your engine had neither lap nor lead, the eccentrics would be set at right angles to the pin, but as you have both you advance the eccentric toward the pin to pull the valve back the amount of lap, then advance it still farther to give the lead opening desired. Looking at the side of the engine that is on the dead forward center it can be readily seen that if the engine has lead when the lever is in full gear forward, pulling the lever back on the quadrant will push the lower end of the rocker arm ahead and the upper rocker arm back in proportion to the radius of the link or, in other words, increase the lead as you hook the lever back until mid-gear when it decreases as the lever is moved from mid-gear to full back motion and if the engine has lead in both motions, forward and back, the ports could not be covered on that side without disconnecting the valve rod. However, if the valves were set with lead in one motion and blind in the other, the ports could be covered by the lever in the motion that was set blind but not in the motion that had lead. Place the engine on the right forward dead center, mark the valve stem with the lever in full gear forward, then have the lever moved from full forward to full back motion and watch the marks on

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the stem as the lever is being moved. If set with the same lead for both motions you can see that it would be impossible to cover the ports. Try it.

* * *

Train Rules and Train Practice.

Answers by H. A. Dalby.

87. Form F.—"There seems to be an inconsistency in the form of train orders under Form F, which reads 'No. 1 will display signals London to Dover for engine 85.' Rule 218 reads 'When a train is named in a train order, all its sections are included unless particular sections are specified, and each section must have copies addressed and delivered to it.' Under the example cited, according to the reading of Rule 218 all sections of No. 1 will display signals for engine 85.

"As it is intended to bring the Standard Code to a state of perfection would it not be a good idea to change the form to read '1st No. 1 will display signals London to Dover for engine 85?' This will conform to Rule 218 and remove the seeming inconsistency."—*C. H. G.*

Answer.—Rule 206 of the Standard Code provides for the manner in which trains shall be designated in train orders, each section being specified when there is more than one. Rule 218 was formed to make provision for cases where sections are not specified, yet, for some reason, more than one section is run. This sometimes happens when additional sections of a certain train are run after orders are issued to other trains. This rule therefore, being formed to cover unexpected developments, would hardly be called into use in the case of issuing signal orders, for when such orders are issued there is no uncertainty as to the number of sections to be immediately provided for.

When the second example of Form F is used, "No. 1 will display signals London to Dover for engine 85," the latter train understands that it is to be the second section. There could be no other understanding. If there were three sections preceding engine 85 this form of order would not apply. It only applies where a train which is originally the only section is directed to display signals for a following section.

We doubt if the modifications suggested by our correspondent would be either plainer or more consistent than the present form.

88. Form F—Continued.—"Could not the first example under Form F be changed to read 'Engine 20 will run as 1st No. 1 London to Paris?' Rule 20 provides for the carrying of signals, and the words 'display signals and' seem entirely unnecessary."—*C. H. G.*

Answer.—Yes, we know of no reason why the suggested form would not be sufficient.

Railway Club Proceedings

Locomotive Front Ends.

MR. WM. MCINTOSH: The locomotive front end is only useful when attached to a boiler that is properly designed and has sufficient capacity to meet the requirements of the service for which it is intended. Next in order, the exhaust pipe must be of suitable form and of proper dimensions, both in diameter and in length. Experiments have been made with adjustable nozzles for exhaust pipes, but there does not seem to have been developed any that have come near enough meeting the requirements to be adopted for general service.

It is generally conceded that draught governing appliances should be designed, as far as practicable, on the lines employed in ejector tubes and air and water conduits, namely, the lines of least resistance. With front end arranged in this way there ought not to be much demand for spark collectors, as the carbon that now so frequently passes through the tubes and forms sparks would be consumed in the furnace through the action of the softer though more intense draught that would be developed by obtaining action through all of the tubes instead of through only a portion of them, as often occurs where imperfect action is obtained. Some effort has been made to adapt the ejector tube principle to smokestacks, principally by widening out the base and the bell mouth form. This principle has been carried to the top of the deflector plate, but only partial benefit was obtained, for the reason that this plate terminates with shear edge at the bottom and from under which we would expect the gases to turn abruptly to the smokestack with more or less of a reactionary effect on the moving current.

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What could serve better would be a deflector plate constructed on the letter "S" or "OG" lines, which form, while being somewhat difficult to shape on account of the necessity of its crossing the exhaust pipe, would, no doubt, when completed, furnish a smoother and more continuous current that could be directed in its action to embrace in a more general way all of the tubes in the boiler.

It does not seem to make much difference about the location of the netting in the locomotive front end, the principal requirements seeming to be sufficient area of opening to furnish to the gases a free exit, and that a fine adjustment of draught appliances is desirable and necessary. It is a fact well known by those who have had to give the arrangement personal attention in a practical way that often the most insignificant change in the location of some of the parts will produce results of marked importance.

The form of the locomotive front end with its restricted area and nest of pipes makes it difficult to introduce ideal conditions, but the best results must be looked for where the ejector principle of easy lines and smooth turns has been followed.

I would suggest that Mr. Vaughan would have some difficulty in standardizing the front ends by reason of the great variation there is in the shape and size of steam pipes and that each distinct class of locomotive would have to have a front end suitably arranged for each particular class. With reference to the inside stack projecting down into the smoke-arch a certain distance, I never succeeded in finding that there was any advantage in it; in fact, so far as my experience goes, the bell-mouth stack attached to the smoke-arch is likely to serve the best purpose. I have recently heard of a double stack, but only in a general way. I can not recall now where it is in use, but I have it in mind as being an inside stack projecting down in the usual manner but considerably smaller than the outside stack, leaving an annular opening around it, and it occurs to me that there might be some merit in a design of that kind. It was quite new, anyway.



"LOOPING THE LOOP" IN 1846

"Looping the Loop" was thought to be an American invention, and as such was introduced at places of amusement in Paris, but in 1846 Paris "looped the loop," as this old print from L' Illustracion will testify

MR. A. M. WAITT: I have always taken a great deal of interest in this particular subject, the front end arrangement of locomotives, and it has been very interesting during the past fifteen years or so to notice the change of public opinion with regard to what the proper design of a front end should be. I remember that when I was first employed in connection with locomotive department work, I was assigned to some studies in that direction, taking in the front end arrangement and also the arrangement as to brick arches in the fire box, with a view to bettering the draft and the steaming and to reducing smoke. At that time, as we all remember, the front ends were supposed to be spark collectors, and they were extended out as long as was thought necessary with the intention of catching the accumulation of the sparks in a trip over

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the road and at certain points, perhaps at 50-mile distances, to discharge the sparks, and many devices which were brought out were quite successful. Later, the idea seemed to prevail that the extension was a nuisance, that it caused a great deal of delay, and that the same results would be accomplished if the sparks were churned up enough in the front end to make them fine and then fired up with enough force to carry them up a good way in the air, so that when they came down all the fire would be out and there would be no danger from them, and that idea seems to prevail now, the idea being to make the front end as short as possible and get rid of all the sparks.

There has been a great difference of opinion with regard to the relation of the exhaust pipes to the stacks. I remember on a road with which I was connected earlier in my career, the superintendent of motive power was one of the early believers in standards, and among other things had a standard stack. It made no difference what the size of the engine was, one standard stack was adapted to them all, and he would point with pride to the fact that if any engine, large or small, came in and the stack was off, any other stack could be put on and it would be all right. I think that is carrying standards too far; but it proved one thing, although, perhaps, he did not think of it at the time, that many of the small locomotives would steam very much better when they were fitted with a stack adapted to the larger engines. I think one of the results of the investigation being made by the American Engineer will be to show that many of us, possibly all of us, are running our locomotives with stacks that are altogether too small, that by enlarging them we will get better steaming qualities; we will get a more even draft, we will throw less sparks out from the stack, we will throw less smoke, and the general result will be much better. On some locomotives which were designed and built within the last few years, it was thought when they were turned out that a 16-inch stack was a proper size. On the second lot of locomotives that was turned out we used shorter exhaust pipe and enlarged the stack to 18 inches, the result being improvement in steaming qualities, and since then I have been thinking that it would have been wise, perhaps, if we had gone further and put on those locomotives a 20-inch stack and made the exhaust pipe even shorter. I think the results of Prof. Goss's experiments show that even a 20-inch stack on these same locomotives would be too small, as the formula that he worked out from the experiments at Purdue for the American Engineer would seem to indicate desirable results from very much larger stacks than we have even dreamed of.—New York Railway Club.

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Piston Valves.

MR. F. F. GAINES: I can not understand why the piston valve has obtained the popularity it now holds, nor do I think that such popularity is justified, or will be continued. In fact, I know of one railroad company which has discontinued the use of the piston valve after a thorough trial and will have nothing but slide valves hereafter. About the only advantage I have ever known of claimed for the piston valve that is substantial is the short ports, giving a less amount of steam in clearance than usually obtained by the slide valve. In the first place, it is very questionable, in my mind, whether this small amount of clearance obtained with the piston valve has all the advantage claimed for it, and I know of one case where a piston valve engine with small clearance had to have the reverse lever quadrant stopped off so that the engine could not be cut back beyond a certain distance on account of the enormous pressure developed in compression. Even granting that this small amount of clearance is desirable, we have offsetting this the fact that the new type of Wilson's American valve can be so designed as to give exactly as short a port as a piston valve, so that the only particular feature claimed for the piston valve can be accomplished with the balanced slide valve. Against the piston valves can be brought out the fact that they are very expensive to maintain, and that unless the bushings, or casings, are frequently rebored and pistons renewed, there is trouble with the packing ring, and no matter how good a job may be made when the engine is in the shop, it is absolutely certain that the piston valves, before the engine comes in for the next overhauling, shall be in bad shape. From personal experience I think that the piston valve is not as easy on motion work as a slide valve; at least, there is nothing in its favor. Possibly when in absolutely perfect condition there is a little less friction. The average of the piston valve is much higher than the average of slide valve, particularly balanced. Then again, in case of water in the cylinder, the only provision that can be made with the piston valve is to have relief

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valves in the cylinder heads, or at some other point where the water pressure can be relieved. Theoretically such relief valves cover the situation, but after they have been on the road three or four weeks I doubt very much whether they would open under double the pressure at which they are supposed to lift, while with a slide valve, on account of lifting off the seat, relief is quick and positive.

MR. WILLIAM MCINTOSH: In regard to the expense of maintaining the piston valve, I do not agree with Mr. Gaines, for our experience with the piston valve has been quite favorable in this respect. We have found no particular difficulty in maintaining it. In fact, I have known of many locomotives to remain in service for two years without it being necessary to bore out the piston valve chambers There is, however, a vast difference in the kind of packings used for piston valves. The first ones with which we had experience did not work successfully at all, but the type of valve we have used during the past three years on our large engines has worn very nicely. There is, however, one difficulty about piston valves I am free to admit, and that is they are harder to keep in adjustment than the slide valve. There are more points to observe in refitting or repairing them, and unless gauges are provided and more than ordinary care taken, it is an easy matter to distort them. But that is more a matter of proper shop practice than any defect in the piston valve. Concerning the valves wearing out of shape, I think that all of you who have had experience with the slide valves, and we all have to a greater or less extent, will admit that the slide valve gets out of order too. We have all seen slide valves that were worn. There is a feature of the piston valve that is more favorable in my mind than the slide valve, and that is there is no trouble about keeping the steam chest in order, and there is a good deal of difficulty in keeping slide valve steam chests tightened up. I have paid a good deal of attention to this feature lately and I notice a great many steam chests of the slide valve type are leaking steam through the joints.

MR. WEST: I would like to ask Mr. McIntosh whether these locomotives, to which he refers and which have piston valves, are operated on practically level roads or where there are grades? I have understood that piston valves for locomotives running with the steam shut off were dangerous for a man handling the lever, whereas under steam they could be reversed at almost any speed, and under almost any pressure. It seems to me that if this is a fact, and that if there is such a tremendous strain on the reverse lever when the steam is shut off, the strain must be very hard on valve motion. On roads like the one with which I am connected, having over 50 per cent. in grades, a device that might be successful on a comparatively level road where steam is used all the time, would be a bad thing for a road with many grades.

MR. MCINTOSH: I have been on the locomotives many times and I have never noticed any difficulty in that respect, although I have heard complaints of the piston valves on the compound engines where high speed is developed causing some difficulty in moving the lever down when they are shut off. In fact, they found the same difficulty with slide valve engines is experienced when the locomotive is at high speed.

MR. G. W. WILDIN: I think that there is only one thing that can be said in favor of the piston valve and that is that it is, probably, pretty well balanced. On the other hand there are several things that can be said against it. In the first place, it is necessary to employ in connection with piston valves either a by-pass or a cylinder-head relief valve, both of which are usually out of order when most wanted. If a relief valve is used, it must be adjusted to withstand a pressure greater than that in the steam chest; that is, to a pressure in excess of what there would be as initial pressure in the cylinders. Otherwise it is always leaking steam, and when adjusted to withstand the initial impact of steam with a wide open throttle they are useless as a means of relieving the pressure developing from compression when the locomotive is "drifting" with the reverse lever notched back. The usual method followed in adjusting cylinder-head relief valves is to tighten them down until they cease to leak, and then give them a few more turns to be doubly sure, after which process they will accommodate variable pressures about as readily as a solid plug.

The piston valves of high speed locomotives require considerably more exhaust clearance than do slide valves on the same kind of locomotives, it is safe to say almost double the amount. This, of course, means an early release and a consequent loss of power.

Another objectionable feature of the piston valve is that it can not be lifted from its seat and so relieve the pressure

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in the cylinder caused by compression when locomotive is running with steam shut off and with reverse lever notched back, the result being considerable pounding, especially if more or less lost motion is allowed to develop in the main rod and driving brasses. This does not hold good if the reverse lever is lowered to corner notch, which is impractical at high speeds. The relief valve does not come into play until compression has developed to a point in excess of the initial pressure of steam, but pounding will take place at a much lower pressure.

As to maintenance, it may be true that the actual cost is no greater than that for the slide valve, but it certainly requires greater skill in handling and a better knowledge of the functions each part is to perform in order to get the same results obtained with the slide valve; especially is this true where the built-up type of piston valve is used. I have found in a number of instances in engine-house work where the proper packing ring was not in stock, that in order to tighten the old one and make it do further service, a small cut would be taken from edges of the bull ring. Such work as this, while done in good faith, means that your valve proportions are being continually changed. With the type cited, which were inside admission, the operation added to both steam lap and exhaust clearance. It also requires that very accurate work in machining and locating the valve or steam chest bushings to prevent having unlike conditions in several engines of the same class. If a slight cut is taken more than should be in machining the steam chest at the works, you must necessarily make a special bushing to fit same, otherwise the distance between steam ports would not be just right and this trouble will continue as long as that particular cylinder remains in service. These troubles we do not have to look out for in slide valves. The distance between ports is never changed, no matter what the wear of valve and seat may be. A slide valve can be lifted from its seat and release compression, which at the same time obviates pounding.

Regarding the statement made by Mr. Gaines that the percentage of clearance is less with the piston than with the slide valve, I think that such is not the case. I think the most ardent advocate of the piston valve would be willing to rest his case if he could persuade the mechanical world that he had succeeded in reducing the clearance to equal that of a well designed slide valve cylinder. A type of valve which I look upon as the logical successor to both previous types of slide valves and piston valve is one recently brought out by the American Balance Slide Valve Company. Because the top of this valve is removed, it may be made any convenient length, thus reducing the length of ports without adding much to the weight. As constructed at present, it probably weighs about one-half as much as the ordinary piston valve and the ordinary slide valve. Its most valued feature is its double exhaust ports which provide large openings and a free exit for steam. We are not concerned so much about getting steam into the cylinder as we are in getting it away after it is once used. The many bridges in a piston valve bushing certainly do not add anything to the ease with which steam will escape to the atmosphere, notwithstanding the fact that the total opening in the bushing ports may equal that of the slide valve or may, possibly, be a little greater. It is important to have the exhaust passages entirely clear; obstructions, though very small, have an important effect upon the performance of an engine. I had the privilege at one time of making a very interesting experiment along this line. A locomotive having 19 inches by 26 inches cylinders and 69-inch driving wheels was equipped with a 5½-inch exhaust nozzle and a ¾-inch variable bridge. The mere introduction of the bridge across the nozzle, at a speed of 45 miles an hour, reduced the total capacity of the engine 107 horse-power. We were also apprehensive as to just how the engineer would use the adjustable feature of the nozzle and we found, as might be expected, it was habitually left in the closed position, which would, of course, insure plenty of steam, it being the engineer's idea that plenty of steam in the boiler meant plenty of power in the cylinders; he disregarded the back pressure.

MR. R. S. FOWLER: About two years ago I had experience on one of the western roads near Denver, and was assigned to some test work with the piston valve and the slide valve. We began the test with the locomotive in first-class condition, just out of the shops, and had a nice load attached to it. After running over a division having one grade that was 5½ per cent., we tried another locomotive that was in a pretty good condition and which was equipped with the slide valve. After working at the different figures of the test and the amount of load carried, we found there was a saving of 7½ per cent. with the slide valve. On one trip

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we had three more freight cars, and on the other trip four more freight cars, than we had with the piston valve; we had a much better load and it was a bigger saving with the slide valve than with the piston valve. The locomotives were equipped all the same except the valves. The valves were the only difference on them and they were especially equipped for this test. We were sent on this test to find the difference between the value of the slide valve and the piston valve. Whatever was the cause for the difference I do not know. I could not place the exact points where the difference was caused, but in the general result, calculated out, the head of the department claimed that there was 8 per cent. in favor of the slide valve.

MR. WAITT: I think, sometimes, that we condemn things without ascertaining just what the reason is, and I believe that the piston valve has been designed and is being designed in every way as satisfactory in its working as the slide valve, and I think if it is perfectly designed, and then after it is put on the road, being a new thing and being different from what the men have been accustomed to in the shops, different from what they have been in the habit of using, due supervision is given as to the way it should be maintained and to see whether it is taken care of properly and whether the men understand how to operate it, the same as we would with any new device that we determined should be a success, or ought to be a success, I think we will find in many cases where the piston valve is now condemned that it would then be all right. Many times, I think, it comes back on those who have the duty of supervising, as to the responsibility for failure or the gratification of success, and if we put a new device such as a compound engine, or a piston valve or anything else on the road, where men are not used to it and do not take care of it, and we do not instruct them how to take care of it and how it ought to be cared for, we may expect a lack of success. On the other hand, many times, something that has been condemned will be found very successful, simply because we have taken care of it and seen that those who have to do with the manipulation or the maintenance knew how to do it.—New York Railroad Club.

* * *

Employes Responsible for Accidents.

MR. WHITTED (Solicitor Colorado and Southern Ry.): I think, perhaps, 50 per cent. of the accidents which occur on the railroads, by which employes are injured, are caused entirely by the negligence of the men themselves; by that I mean, they are not due to faulty equipment; they are not due to the fact that we do not have automatic couplers; not due to the fact that drawbars are out of order; not due to the fact that air brakes on the train are out of order, but they are due to the violation of the various fundamental railroad rules that every employe understands. I remember one of the most serious accidents that I ever had to do with was caused by the violation of a rule which is a cardinal one—as I am informed by those operating trains—that is, the failure of the rear brakeman to go back a sufficient distance to protect his train from an on-coming passenger train. The result was a collision in which the fireman had both of his legs cut off and was made a cripple for life. It were better for the employes of this country if the men who are thus careless could be punished under the criminal law. How to reduce that class of accidents is the question. We can reduce others, so far as faulty equipment is concerned, and statistics show that it is being constantly done. As you take away overhead obstructions; as you improve the quality of track; as you improve the condition of cars, trains and engines, these things reduce accidents; but how to improve care and caution on the part of the employe, that is the question. Now, I take it that the employes themselves owe a duty to the company. We do not hear much about that. All we hear is the duty of the company to the employe. I wanted to emphasize the reverse side this evening. I wanted to insist that employes have a duty not only to the company, but a duty to their fellow-employes. It is the lack of care and caution on the part of employes that causes most of the railroad accidents. Seemingly, in spite of all that can be done—in spite of all rules that we print and put in the hands of employes—they go out on the road, run trains together, costing the company thousands of dollars, and if an employe is injured on the train he sues the company—the company pays the bill, repairs or replaces the destroyed equipment, and nothing is said about the obligation of the men to the road. Is it not fair to consider once in a while this aspect of railroad accidents—that there is some duty, at least, on the part of the employe to the company? * * * I have known of men being discharged from one company for

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negligence, getting employment with another, working upon that road for a little while, running two trains together, getting discharged for that, and going to another. There is such a thing as a careless man in the operation of railroads, a man who is constitutionally negligent and indifferent. Now, that man ought to be blacklisted, if these is any way of doing it. He has no right to go from one company to another, injuring and killing men. Under the present state of the law you are not allowed to communicate to another company the fact that the man is incompetent and reckless.

MR. ROESCH: Now, to my mind, as a railroad man—one who has been out among them and has seen how these things work—one of the principal causes of the accidents is due to the desire of every man to be a good fellow with everybody else. If every employe of a railroad company was to report the negligence of his fellow employe to the proper official, this negligence would stop. I do not mean to say that every individual should be a spy on his fellow-servants, but I do mean to say that every individual should insist that his brother employe or his fellow-servant performs his duty as demanded by the railroad company just as well as he expected to perform it himself. Of all the engineers on the Colorado and Southern Railway that I can think of at present, and I know them all, there is but one man that I know of who insists absolutely on every man doing his duty as required by the rules. You take a man going out on the road; he sees a flagman ahead of him, probably on the tail end of a caboose; maybe he has a fusee; the engineer knows he can stop his train, and answers the signal. Now, that man, I say, should be reported, and I say the engineer has no right to answer that signal. The other day—only yesterday—I stepped over a death-trap myself, simply for the failure of one man to do his work as he should have done; that was the work of the machinist. I reported the matter, as that was my business. You take an engineer going out of here; he has to report some little defect about his engine; he thinks it can be fixed. The roundhouse foreman is also of the same opinion. The engineer fixes it—that is, before he goes out—and makes the proper repairs himself. Now, the engineer wants to be a good fellow; he does not want to say anything about the engine as he found it, because the man who was supposed to fix the engine might lose his job. A brakeman, climbing up the side of the car, gets hold of the side ladder and pulls it down, simply because the lag screw was driven in instead of being screwed in by the car repairer. He says nothing about it and goes on. He is putting a premium on that man's carelessness. I think, gentlemen, if every one insisted upon the other man doing good work, and reported negligence on the other man, that these accidents would be reduced 50 per cent. or more.

MR. PARKER: I heartily agree with Mr. Roesch in this matter. If the man happened to go up the ladder while the train was in motion, he probably would have been killed. There is a difference between what we call tattling or giving away our fellow-men, and what also should be told for the information of the railroads on account of servants who may bring on destruction and death, and I quite agree with Mr. Roesch along these lines and I think it is most excellent to bring up illustrations of that character.

MR. WHITTED: When the question came originally before the English courts—that is, prior to the existence of the United States—whether, if one employe injured another in the common employment, the master himself being blameless, should compensate the injured employe, the English courts decided this question then on the reason of the thing, unaffected by any statute. They said if two men were engaged in a common employment and one injured the other, in violation of the rules prescribed by the employer, that the employer should not be required to pay the man who was injured because his injury resulted from the negligence of a fellow-servant. The law stood that way for a long time, but as corporations multiplied and a larger number of men were employed in that way, these accidents wherein one man was injured by the negligence of another became more common than they were in a primitive state of society, in which these decisions were made. Consequently, courts and legislatures were frequently confronted with the question whether there should be compensation by the employer in such cases. The legislatures in many States compromised on the proposition, allowing a recovery in certain cases, and denying it in case of death except to the extent of $5,000. There is no *reason*, I think, why, if I employ two men and one injures the other, that I should pay the injured man, but there was such a large number of accidents happened in that way that the legislature finally allowed compensation in many cases. Certain or-

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ganizations went to the legislatures of different States and demanded that all restrictions be removed, and in some sections of the country they have been removed. A man may recover five, ten, fifteen or twenty thousand dollars, the whole matter being left to the discretion of the jury. If two men are working together for a common employer, and one injures the other, the injured one, or his relatives, may sue the employer and recover any amount of damages that the jury sees fit to give under the circumstances. The removal of that limitation makes personal injury claims more difficult to settle in States where that law exists. Suppose you hire two men to paint your house; one of them negligently kicks over the ladder and breaks the leg of the other. The man injured goes into court and recovers a judgment against you, although you may not have had a thing to do with the accident. The court makes you pay for the conduct of the other man. That is the state of the law in Colorado at this present time. When you get these statutes wiped out, which prescribe certain limitations defining where there can be a recovery and where not, you then greatly increase the claims against corporations and necessarily increase the difficulties of the claim agent in taking care of them.

MR. SCHLACKS: I would like to ask Mr. Whitted if that rule of law does not increase the responsibility of the co-employe? Also, if a man had a wreck on the Santa Fe and then changed to the Colorado and Southern, if the C. & S. would not be encouraged to blacklist that man, on account of knowing the carelessness that that man showed on other roads.

MR. WHITTED: Well, I don't know. I think the fellow-servant law ought to increase the feeling of responsibility on the part of employes, but I doubt if it will. I do not think the railroad ought to blacklist a man without a good deal of caution, but there is such a thing as a constitutionally indifferent and reckless man. I am frank to say that I think that man ought to be blacklisted; I think the railroad ought to state the reason why the man was discharged, not only for the good of the railroads, but also for the good of employes on other railroads. The railroad also owes a duty to the traveling public. If a railroad company should be sued for an accident that happened by reason of the carelessness of such a man, and it could be shown in court that he was known to be careless and was employed with a knowledge of that fact, the railroad company would be held responsible. It is no advantage to the railroad employes themselves to protect men of that character.

MR. WELLS: I have been very much interested in this paper, and it seems to me there is a great deal to be gotten out of it. I want to discuss blacklisting. When Mr. Parker has hired a man, and I want to hire that man, and the law comes in and says I have no right to talk to Mr. Parker, and Mr. Parker has no right to give me any information about that man, where are we? What does it mean? Where is the liberty that some of our people are talking so much about? Another thing I have been very much impressed with this evening, and that is the lack of care; that is the keynote of the whole proposition. In all problems that arise in railroads it is more a question of care than anything else. We were on the oil question for a long time, and when a locomotive had a hot-box, the remedy was more oil. But afterwards it was discovered that a little bit of care was better than more oil. We are beginning to discover that a little bit of care is a necessity in all cases.

MR. ROESCH: In speaking about blacklisting I desire to take exception to some of the remarks made here. I do not believe in it. I do not believe it is right to blacklist any one, no matter what his crime may be, no matter what he has done. I do not believe in following him from one part of the country to another. This blacklisting system gives too many opportunities for one man who is prejudiced to vent his animosity on another. We are all inclined to be a little bit careless from top to bottom. The reason I make this statement is that I had occasion to examine a clearance of an engineer the other day, who, I know, is as irresponsible a party as could be placed on an engine. He is an habitual drunkard. He had a clearance card stating he was discharged for going to sleep on the caller; character and conduct generally good. Now, if I had not been personally acquainted with this man, and knew his record for the past ten years, I would certainly have employed him. Now, who is the guilty party? Is it this man, or the man who gives him his clearance? I think the better way to adjust these matters would be to take the "Brown System of Discipline," in which every man's record is kept. When a man leaves the service of a company give him

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an impression copy of the record; that should be his clearance. There you have the man's acts for all the time that he was in the employ of the company. If his conduct and general character were good it should be so stated on his record. If it is such that we could not employ him it should be stated in that way. Then the employer takes no chances on the man he is employing; but, as I stated before, where an official, knowing the character of a man, will deliberately issue a clearance card like that (now, that was a fact; I read the card myself), I think there is something wrong. The reason of this was the man was a personal friend of his. A man who will do that to a close personal friend will follow a man he did not like to the end of the earth.

MR. WELLS: I would like to ask Mr. Whitted if clearance cards are not brought out by the anti-blacklisting laws. There is nothing in these laws but what should be there—that is, if we tell the truth, and the man tells the truth. Supposing one of these cards says the man was drunk, and he is unable to get employment. He turns around and says the company blacklisted him; that is the trouble. That is the reason these men get cards, saying they went to sleep on the caller, or had some little trouble.

MR. WHITTED: I will not say that in some cases the statutes provide that an employer shall not state anything in a clearance card that will prevent a man from getting employment. Under these circumstances it would be dangerous to give an employe any kind of a card, even if he stated the truth, for, if he was unable to get employment, he would say that the clearance was not true, and the party issuing it had prevented him from getting work. I have talked with a good many managers and superintendents, and I have yet to find one who approved of trying to blacklist anybody. There is a difference between maliciously blacklisting a man and simply stating to your neighbor, when he applies to you, the reason you discharged the employe. Nobody defends malicious blacklisting.

MR. ROESCH: Would not the Supreme Court of any State have a right to pronounce that fellow-servant law illegal, or could not they give a decision against that law?

MR. WHITTED: No, sir, I think the court has no right to do that. I do not believe there is a man sitting here that feels there is any reason in that law. What I submit to you is, is it fair to make a man pay for an injury to one employe caused by the negligence of his fellow-employe, when the man who causes the injury violates a plain rule or order of his employer?

MR. PARKER: Before closing the argument, I am going to ask Mr. Doolittle, who has handled claims a good many years on the Missouri Pacific and the Colorado and Southern, whether there is any possible way of keeping claims under this very method, which Mr. Whitted has brought out continually in his conversation tonight, namely, by keeping claims showing those who have been injured by the neglect of a fellow-employe, and those who have been injured by their own act.

MR. DOOLITTLE: I would say that the record will very clearly show about 75 to 80 per cent. of accidents are either due directly or indirectly to the negligence of the men operating the trains. There are cases, of course, where the appliances are in bad order; where there was a lack of inspection, and I think we can keep a record that will bring these cases under a proper heading for analysis at any time, but we do not do it at present.

MR. PARKER: The point that I make is this: Can you keep a record of those who are killed by the negligence of a fellow-employe and those who are killed by their own negligence? It is not a question of the killing of employes, being 75 per cent. compared with outside people, but what is the percentage of individuals who are killed by the negligence of other employes?

MR. DOOLITTLE: I say we can, but we do not keep such a record, because we have not all the facts of the case before us.

MR. WHITTED: What is the proportion of accidents that happen from pure negligence?

MR. DOOLITTLE: I would say 80 per cent. at least from pure negligence; that is, directly or indirectly; either due to a man's own negligence or to the negligence of some fellow-servant. I do not like the word negligence as applied to employes. I think employes are more heedless than they are negligent. I think an employe often gets into the habit of doing things, and he becomes heedless, and the more experienced the employe, the more chances he takes, and when he finally finds himself in the place of danger, it is too late to extricate himself; so the most serious injuries among employes, as a rule, are with the old men in the service. I think that applies especially

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to coupling cases. An experienced man will take a chance that a green man would not take; would not know how to take; and I think we might, with profit to our company and to many other companies, take a little more pains in classifying these accidents. But it requires a good deal of time to do it, and I think we might show under these different heads where the money goes. Of course, my statement to you of 80 per cent. of the accidents being from negligence, is an off-hand statement, but that would be my impression from handling these claims.

MR. SCHLACKS: I would like to know where the accidents caused by negligence would stop? Is not everything—every accident—due to negligence? Is not everything which is not an act of God, an act of negligence?

MR. WHITTED: What I defined as something due to pure negligence is a case such as I illustrated, where a brakeman failed to flag the following train. Now, that could not possibly be classified with those due to defective appliances. The brakes were all right; the engine was all right; the track was all right; the accident was simply the act of the brakeman; he did not attend to flagging the following train. That is an act of pure negligence.

MR. SCHLACKS: Supposing a company had adopted the block system?

MR. WHITTED: That possibly would have prevented it, but we have not the block system in Colorado. We have not the money at the present time. We might, by abolishing crossings, by abolishing overhead obstructions, by double tracking and by the use of the block system, reduce accidents to some extent. Of course, you can go ahead with an unlimited expense and prevent some accidents, but you could not now get money enough out here in this part of the country to make all of these improvements.—Rocky Mountain Railway Club.

The "Overlap" and Running Past Stop Signals.

PRESIDENT HOPE: It is manifest that the recent epidemic of steam railroad disasters and the censuring verdicts of coroners' juries have focused public criticism on the railroad companies, and it is incumbent on this club to duly consider the art of signaling in its relation to these accidents and to devise practical preventive measures.

Of course in a number of cases the signals were not at fault, but the failure of the engineer to obey the signals is no reason that signal engineers should not go deeper into the subject with the view of devising some aid, mental or mechanical, that will tend to force attention and obedience to signals. We all know the mental effect upon the engineer of an open derail ahead of a displayed home signal and that it is generally sufficient to enforce obedience to the signal. This prompts the inference that there may be other devices or disciplinary methods to accomplish the same end with block signals; and towards this it would be well to direct our efforts. The efficacy of the derail seems to depend on two factors, viz.: the threatened danger to person and property and the discipline following certainty of detection.

During 1902 in Illinois there were 138 derailments at interlocking plants due to trains running against signals. There is here food for reflection; for if trains run against signals when derailment is the penalty, we must infer that a much larger number is run where there is no penalty or detection except in case of disaster.

May it not be that the engineer who allows his engine to be derailed does so through a certain carelessness in his nature, developed by continued disregard of signals where there is no penalty attached? Can we not prevent this by devising some complete check on all signals and make the penalty of disobeying them adequate? A man values his honor above position. Can we not make the penalty dishonor and of such a force as to have more weight than loss of position?

Discussion seems often to be centered on the "Automatic Stop," but here we encounter the danger of the engineer shifting part of his personal responsibility to the device, and the question is, should we be any nearer attaining the result sought.

It is stated that English railways using the block system have succeeded in almost absolutely preventing collisions; that English engine runners obey their signals with unvarying fidelity, whereas American engineers have shown a frequent disregard of signals that is difficult to explain. May this not follow from the fact that in England signals are the ordinary, not extraordinary, method of handling trains? Engine runners grow up under these conditions, whereas in the United States most railroads have only a small proportion of their roads signaled. I wish to urge the careful thought and ef-

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fort of each individual member. Even a suggestion may assist us to accomplish what we have set about to do.

MR. H. M. SPERRY: In automatic block signaling we omit the overlap as soon as we provide the distant signal. The question is whether we are right in doing that. If a following train overruns the home signal there may be a collision. Would it not be better to introduce the overlap. Make it such length as you please, determined by speed, grade, etc., so that with a train stopped with the signal immediately in its rear, we would hold at danger the home signal one section farther back. If the next train should overrun, it would have the full length of the block to run before it would cause a collision. We know that men do overrun signals for various reasons. Now, are we asking the operating department too much in saying to them that they must invariably stop at a home signal horizontal and not go even 100 feet beyond it?

MR. W. H. ELLIOTT (by letter): When a distant signal is used in connection with the home signal, I think that in view of the recent accidents that have happened where automatic signals have been run by, that the overlap is a very necessary safeguard. While there are few or no automatic systems that have the overlap and the distant signal, the C., M. & St. P. from the first automatic signals installed has used the overlap and the distant signal. On the same principle that a space is always provided between a home signal and a derail, a space is needed between an automatic home signal and the potential fouling point ahead, which is the rear car of the supposed standing train. At the St. Louis meeting, two years ago, said Mr. Elliott, the weight of opinion was against the use of the overlap; but the C., M. & St. P. is satisfied that it should be used and that it is worth the additional cost. Near a large terminal, where no distant signals are provided, the overlap is made 1,500 feet; with automatic block sections two miles or three miles long, and provided with distant signals, the overlap is made 1,000 feet. With block sections of less than 1.5 miles the overlap is made 600 feet long. The Milwaukee road now has distant signals at one place 3,000 feet back from the home signal and another is soon to be put in which will be 4,000 feet distant; a separate post is used, if necessary.

MR. SPERRY: The length of the overlap, in my opinion, depends upon the speed and grade, with some consideration, possibly, of the length of cut sections.

MR. W. H. LANE: By the introduction of the overlap, are not we introducing an uncertainty in the engineer's mind, as to exactly where he must stop? And does not an uncertainty introduce an element of danger? If an engineer knows he must stop at every signal, and can not run by it a foot, I think discipline can be carried out much more easily than if we allow him to run a certain unstated distance beyond the signal.

MR. WILEMAN: It seems to me the introduction of the overlap is too much like removing a derail. It lessens the necessity for stopping at the signal.

MR. ROSENBERG: An engineman comes along running as second section and gets signal A clear; then he comes to B and the block is clear, but the overlap holds signal B against him. Under the rules he is obliged to stop, unless you allow the four-mile-an-hour rule. He will stop there, and after starting a train of seventy-five cars, perhaps with a break-in-two thrown in, and he comes to the next signal and he is held again, because the train is either in this block or the block ahead. I had the pleasure yesterday of going over our line with a representative of the London and Northwestern, a gentleman in charge of signaling on that line. He brought up this same question that Mr. Sperry has advanced; but he did not believe in the overlap. He asked, however, why we should not have two entire blocks between our trains, that is, A not to clear until the train has passed C. If we take the stand that an overlap is allowable, I think that we rather put ourselves in the position of admitting that an engineman can not stop at a signal. Our enginemen stop from any speed, and whatever the weather, even on a winter's night, when they approach a plug at which they should take water; there is no light on the water plug, either. They know the location. The whole thing can be summed up in a nutshell—tell the engineman, if you run by a signal, the discipline will be dismissal. We will not suspend you, pat you on the back and say, "You are a good engineman, don't do it again." I don't believe in that. I know of a railroad which will fire a man the first time he is caught running by a signal, and I am happy to say that most satisfactory results have followed from this rigid discipline. Very few enginemen have ever been discharged for this reason.

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MR. H. RAYNAR WILSON (Lancashire and Yorkshire Railway of England): The question of the overlap does not come up in quite the same way as you have it here. At nearly all our signal boxes we have three signals—the distant signal, the stop signal and a starting signal, or, as some people call it, an advance signal. Our standard block regulations, drafted by a committee of operating officers, provide that a second train shall not be allowed to approach a signal box until the preceding train has passed the starting or advance signal and is on its way; so that unless the preceding train has gone forward past the home signal 250 to 300 yards and is traveling, the second train shall not be allowed to leave the signal box in the rear. In those cases where there are no starting signals, the rule is that a second train shall not be accepted unless the preceding train has gone 400 yards beyond the home signal; so by that means we provide what you may call an overlap of 200 to 400 yards.

This question of overlap for automatic signals has already arisen in our country. On the London and Southwestern an installation of six miles has been fitted with automatic signals. These sections are one mile in length and there is no overlap, but the Board of Trade have not approved definitely of these works. They are waiting to see the result of this and the Northeastern installations before they decide as to whether the overlap is necessary and advisable. It has been said here that on a certain road in America it is the practice to "fire" an engineer if he passes a danger signal. That is an excellent practice, and is one which we follow in the old country. A driver found guilty of passing a signal at danger is discharged. I admit that it seems nice to arrange so that in case a driver should overrun a signal there should be some little distance for him to pull up in; but the question is, if he will ignore the distant signal and the home signal, may he not go still further and ignore the overlap also? Is it not better to educate your drivers to feel that if they pass a stop signal at danger they are liable to get into collision with another train, and therefore is not the overlap a thing that should be eliminated?

MR. ADAMS: Mr. Rosenberg has spoken of an ideal road (I suppose it is his own), where the enginemen have been told that if they run by a stop signal it goes hard with them; if they are discovered they are discharged. Now, how are they discovered?

MR. ROSENBERG: If any gentleman wishes to know how we do it, I shall be glad at any time to take him into my confidence and tell about it; but I do not care to discuss it in a public meeting.

MR. SPERRY: You can not be sure that the best runner on the road will not have some little thing happen which will prevent him from stopping. If you could guard against such contingencies I would say there is no use in the overlap. We are not going to tell them they can run by the signal post. We are going to say, "You must stop there, right at that signal, not one foot further than that signal;" and we will introduce Mr. Rosenberg's method of finding out whether they do or do not stop at the signal—it is a good method—we will introduce that to stop the trains at that signal, and we will discipline the men and "fire" them if they do not stop at the signal; but sometimes things will happen when it does not do much good to fire the engineman—it is a little bit too late.

Speaking of the derail, it is usually placed right at the signal, and it gives the man no chance. Hence we hear of 138 cases in a year in Illinois of overrunning the signal. That means these men failed in 138 cases to stop at the signal. Some only went a few feet by, but they were caught on the derail. When we put in the derail to discipline men we admit at once that we are not able by normal methods to maintain discipline. All I claim for the overlap is that it is a precaution; it is not necessary if the men can be depended on to stop. It is, however, very necessary if there is any chance of the men running by the signal. The English railroads have recognized that they must have the overlap in their present system, and they do not clear the block in the rear until the train has passed the advance signal. We have taken chances because we have a good air brake, but sometimes the brake is not put on at the right time; in such cases it is good to have the overlap.

MR. AMES: If the discipline is such that the runner is taught the proper significance of a red signal, ought not one to be to him as good as a dozen? Does not the thing boil itself down largely to an interpretation of the distant signal? It seems to me that if the runner is properly trained as to what the distant signal means, there will be very few cases of his approaching the home signal at a speed which would make any overlap

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necessary. Is it not a question of disciplining the man to properly regard the indication of the distant signal? I think if the engineman has to stop his train twice in going through a block of moderate length there is a delay to traffic; operating officers would object to it. We can not conceal the presence of the overlap from the locomotive runner. They most of them know what a battery and relay box means, and it would not be long before they would steal the 1,200 or 1,500 feet, or whatever the length of the overlap might be.

MR. SPERRY: If we can stop the train at the signal, no overlaps are required. We may say to the superintendent: "We propose to signal your road, and expect you to stop your trains at the signals; we will not provide any overlaps. If you can do this, we will arrange the signals accordingly. If, for any reason, you feel that you can not do it, then comes up another question." That is all there is to the overlap. Mr. Rosenberg brought up the question of speed. Of course the length of the block is dependent upon the speed. High speeds mean long blocks; low speeds in congested districts, short blocks.

Then there is another problem—that of running high speed and slow speed trains over the same section of road. There are too many blocks for the high speed runner and only the right number for the low speed runner. I recently rode over a piece of track equipped with home and distant signals where I counted not less than thirty-eight signal blades in ten minutes.

MR. ADAMS: I should like to hear some signal engineer make a motion that Mr. Sperry's theory of the overlap be approved, or that it be disapproved.

No one responding, Mr. Adams said: "To get the question before the meeting I will be rash enough to move that it is the sense of this meeting that the overlap is not necessary where the distant signal is employed:

Mr. Wileman seconded the motion.

A standing vote was taken, resulting as follows: Affirmative, 22; negative, 5.

MR. SPERRY: That speaks very strongly for the discipline maintained on American railroads.—Railway Signaling Club.

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Self-Cleaning Locomotive Front Ends.

MR. FRANK SLATER (M. M., C. & N. W. Ry.): A great deal has been said on the subject of locomotive front ends, including diamond stack, extension front, and self-cleaning fronts. It would therefore seem that nothing more could be said that would be new or of interest to any one. In the September meeting of the Western Railway Club, in the year 1899, Mr. J. Snowdon Bell read a very valuable and lengthy paper on "Extension and Self-Cleaning Front Ends." It covered the ground so fully that it is difficult for any one to see wherein anything additional can be said or added to Mr. Bell's paper. I therefore can not go into the subject to any great extent without repeating what has been said by others, and therefore only refer to the subject of "Self-Cleaning Front Ends."

It has been the opinion of practically all railroad men, that an extension front is an absolute necessity, in order to prevent setting out fires; but in my opinion this is a mistake. I have made very careful observations of the accumulation of cinders in extension front ends, and in nearly all cases cinders accumulate very rapidly in an extension front end, until they have reached a certain height, this height depending entirely upon the front end arrangement. Many of the cinders which are drawn into the front end remain in it until a certain height is reached. The front end then converts itself into a self-cleaning front end. No more fires are set out after the front end becomes in this condition than is the case before, or when the front end is perfectly clean.

The master mechanics and roundhouse foremen must agree that it is a very difficult matter to keep the door joint on the boiler front air tight, as well as the joints on the cinder hopper. Any slight leak will allow the hot cinders to burn, thereby warping and cracking the front end, which is very expensive, as well as giving the engine a very bad appearance. It seems to me, therefore, that a self-cleaning front end would be by far the most economical for a railroad company to use, and would give the company the same protection against setting out fires that the extension front end does.

Some years ago it was the custom on many roads to clean the front ends of locomotives at several places on the division over which the engine was passing. This practice has practically died out, and engines are now expected to pass over the entire division without cleaning the front ends. Thus, over a greater portion of the division the engine is being operated with what might be termed a self-cleaning

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front end; and when in starting out on a run the engine is equipped with a spark retaining front end, it soon converts itself into a self-cleaner.

I have experimented a little for the purpose of finding a front end arrangement that could be applied to the extension ends in use, which would be self-cleaning and do away with the accumulating of cinders back of the steam pipes and exhaust pipes, and at the same time so distribute the draft through the flues that all flues will remain clean.

A great many front end arrangements are in use and applied to an extension front end, whereby the diaphragm or baffle plate is carried out ahead of the exhaust nozzle. The table plate which extends from the baffle plate, back of the pipes, to the one ahead of the pipes, is a solid plate. Front ends fitted up in this manner always fill up with cinders around the bottom of the steam pipes, and back of the exhaust pipes, as well as stop up a large number of the lower flues. Cinders also accumulate on the top of this table plate.

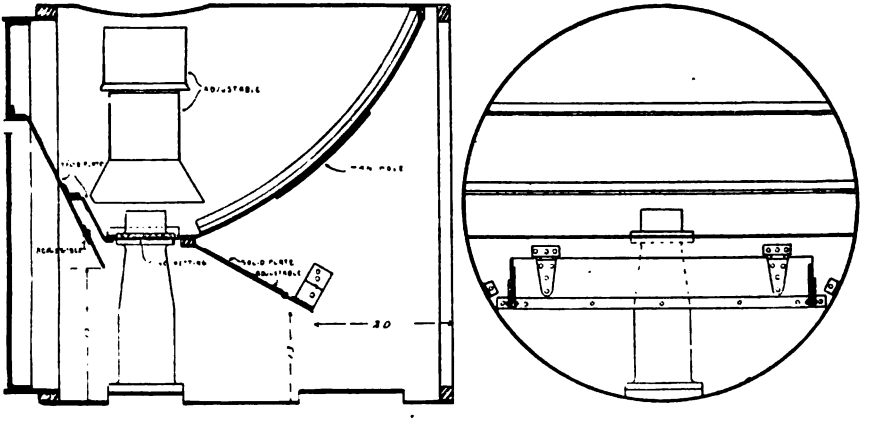


Fig. 1. Self-Cleaning Locomotive Front-End

The front end which is shown on the accompanying drawing, No. 1, has a table plate made of perforated steel. The ordinary diaphragm is used back of the steam pipes which is adjusted to distribute the draft through the flues uniformly, and should be set as high as possible without allowing the cinders to accumulate around the bottom of the steam pipes or back of the exhaust nozzle.

The front diaphragm or baffle plate is used for the purpose of carrying the draft far enough ahead to make the front end a self-cleaning one. A perforated table plate is used for the purpose of preventing an accumulation of cinders on top of same. In practice it will be found that enough of draft will pass up through this table plate to keep it clean, but the major portion of the draft will pass ahead and under the front baffle plate, thus keeping the front free from cinders. The advantage in using this device, applied to an extension front, is that it affords ample netting area to reduce the velocity of the cinders and in this way allow cinders to be churned around the front end a sufficient number of times to extinguish them and pulverize them, throwing them out harmless. It is my opinion, however, that locomotive front ends with this device can be shortened considerably, as no cinder hopper will be required; but I have not conducted any experiments for the purpose of determining just how short the front end can be made and give the engine a sufficient amount of netting for free steaming. It will also be noticed that front end No. 1 has a petticoat pipe.

The front end shown on drawing No. 2 is also applicable to engines with extension front ends. It will be noticed that this front end arrangement differs quite considerably from the arrangement shown on drawing No. 1. The back diaphragm is without movable apron, and is set at a height which has been found by experiment to prevent the accumulation of cinders. This experiment should be made on an engine with a movable apron, and when the height is found, on engines of any given class, a solid plate can be used which will reduce the cost, as well as avoid the expense of adjustment, which will be found unnecessary.

On the engine experimented with it was found that eighteen inches was as low as

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was necessary to keep cinders from accumulating back of the steam pipes and exhaust pipes, also low enough to prevent the lower flues from stopping up. It will be noticed that the table plate is extended to within twenty inches of the front end, and the front diaphragm or baffle plate is vertical instead of on an incline, as is the case in drawing No. 1. The adjustment of this diaphragm will enable the front end to be kept practically free from cinders. It will also be seen that no petticoat is used, which simplifies the front end very much. The solid table plate, however, allows an accumulation of cinders on the top of the plate, which does purpose of allowing the cinders which have passed through the netting to drop back into the front end space below the netting, it will be simply impossible for any witnesses to convince a jury, such as are ordinarily selected to try a case for fire damages, that it would be impossible to prevent live cinders from escaping through these openings and through the stack. I question very much whether a jury of mechanics would agree that a Johnson front end would be a safe one to use. A railroad company must not forget that there always have been and always will be suits for damages wherein the locomotives have not in any way been

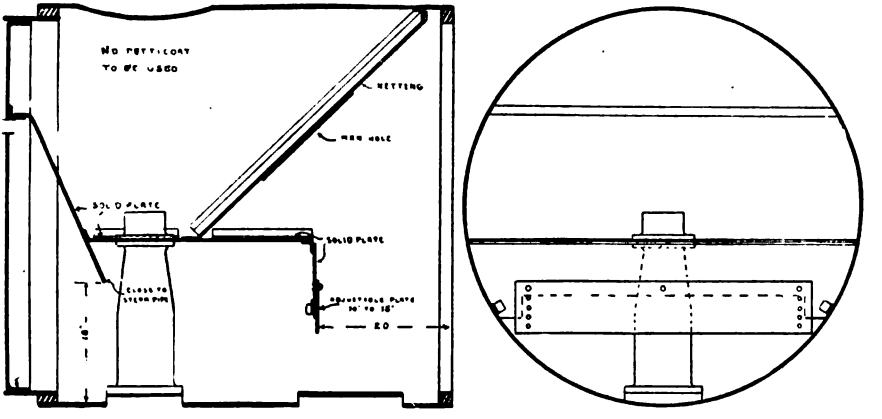


Fig. 2. Self-Cleaning Locomotive Front-End

no harm. I would also call attention to the netting being brought back so as to be as close as possible to the exhaust nozzle, thus giving the greatest possible amount of netting, which is necessary.

Both styles of front ends shown in the two drawings are giving very good service, and its choice would depend entirely upon the user.

By referring to Mr. Bell's paper and examining the cuts presented by him, it will be seen that two front end arrangements are shown which have openings in the netting for the purpose of allowing cinders to fall back after having passed through the netting; at least, it is my opinion that this is what the openings are intended for. I do not believe that it is safe or wise to apply a front end arrangement to any engine that has openings in any part of the netting or diaphragm arrangement. While it may be barely possible that cinders, in their movement through the flues and up through the stack, will not pass through these openings, and that the openings serve for the responsible for the setting of the fire, and it therefore will stand them in hand to have a front end arrangement with the finest possible netting that the engine will steam with, and under no circumstances must there be openings in any part of the netting larger than the opening of the mesh.

It may also be desirable to have passenger engines equipped with an extended front end which will deposit a large number of the cinders in the smoke arch, for the comfort of passengers; but there are a great many engines built for switching purposes and freight service which will never be used in passenger service. On engines of this build, a self-cleaning front end, so arranged that live sparks of a size which will set fire can not escape, will certainly be a more serviceable and profitable front end arrangement than the present extension fronts, whereby it is the intention to collect cinders.

In examining drawings of front ends in use on many other roads throughout the country, it will be seen that a great

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many of the roads use front ends minus the petticoat pipe. I have tried a great many times to dispense with the use of the petticoat, for the reason that the simpler a front end can be made the more easily it can be adjusted to do its maximum work, but I find the following: it requires a smaller nozzle without a petticoat than it does with one. In addition to this, on engines having low exhaust nozzles, as is the customary practice at this time the blower is very poor, not having the same effect upon the fire that it will have when a petticoat is used. It therefore requires a greater length of time to get up steam when the engine is being fired up than it does when a petticoat is used; and also the blower must be applied very much stronger without a petticoat than with one, when it is intended to check black smoke, when engines are standing at stations. Should the steam pressure from any cause become lowered, and it is desired to force the fire with a blower, so as to raise the steam pressure, the engines without the petticoat will be found to very much slower in generating steam than when a petticoat is used. The double petticoat shown in the drawing, which is the same as the one recommended by the Master Mechanics' Association, is the best form of petticoat I have found; and I have tried all kinds that I have seen illustrated, as well as many that I have not seen illustrations of. If a person should take the time to look over the hundreds of drawings of front end arrangements which can be found in different mechanical journals, as well as the papers of different persons which refer to the different ideas on extension front ends, he will become satisfied at once that such a thing as a standard front end arrangement for locomotives, and one that will be generally adopted throughout the country by the different railroads, is entirely out of the question.

No two superintendents of motive power, master mechanics or roundhouse foremen, will agree on a front end. Two neighboring roads running through the same section of country, using the same grade of fuel, can not (at least, so it is claimed) use the same front end. In fact, it is safe to say that the different master mechanics on the same road will hardly agree on a front end. Each one of them has some idea of a front end that is just a little different from the others and which he thinks is superior.

What seems strange is that two men, or any number of men, can not get the same results from any style of front end; at least, it has always appeared so to me. This matter can be carried so as to include all locomotive engineers. Almost every engineer has some idea of a front end that he thinks is better than the one in use, and if he were only allowed to fit up a front end with his ideas it would certainly be better than any front end that he has ever seen. This might be true if he were always to run the engine, but some other engineer getting on the engine will want an alteration made. I believe that roundhouse foremen who have the most to do with front ends will agree with me that this statement is correct. Therefore it seems to be a hopeless case of ever trying to get a standard front end.

The differences between the different front ends, in many cases, are so slight that it does not seem sensible to have this difference exist, but it does exist, and will so long as there are locomotives and master mechanics in charge of them.

THE PRESIDENT: Mr. Slater's paper has been in the hands of the members for several days, and I presume most of you have read it. I think it is a matter that ought to provoke considerable discussion. Have any of the members present anything to say in reference to the ideas presented?

THE SECRETARY: Mr. President, I have a communication from Mr. J. Snowdon Bell, of Pittsburg, Pa., a member of the Club, who, you probably will remember, presented a paper on the subject of locomotive front ends three or four years ago. Mr. Bell says:

MR. J. SNOWDON BELL: I have read, with much interest, an advance copy of Mr. Frank Slater's paper on "Self-Cleaning Locomotive Front Ends," and do not see how any fair-minded and unprejudiced motive power man can fail to endorse the views which he expresses. They are, in my humble judgment, not only fully in accord with the most recent and advanced practice, but are also based on sound mechanical principles and good common sense. Railroads have for a long time been the victims of the "extension front" habit, and as, like other bad habits, it is difficult to break abruptly away from, the gradual process of reform which is known as "tapering off" is that which is being generally adopted. While progress towards correct practice in this direction is somewhat slow, it is none the less sure, and papers of the character of Mr. Slater's will help to expedite it.

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The absolute fallacy of the "spark retaining" theory, upon which the claims of advantage are chiefly based, has been so long ago and so fully demonstrated in railroad service that it is difficult to understand how anything other than prejudice or mere force of habit keeps the extension front out of the scrap pile. It is too obvious to need argument, that after an engine having a supposed "spark retaining" extension front has run a few miles, and banked up a small quantity of cinders at the front of the extension, the cinders are thrown out during the remainder of the run, and, as stated by Mr. Slater, "over a greater portion of the division the engine is being operated with what might be termed a self-cleaning front end," and the engine "soon converts itself into a self-cleaner."

The view of Mr. W. H. Lewis, superintendent motive power, Norfolk & Western Railroad, which is quoted in my 1899 paper, to which Mr. Slater refers, is so directly in point in this connection that I desire to again call attention to it. Mr. Lewis says:

"It was found that our long extended fronts accumulated the maximum amount of sparks in a distance of ten miles, in heavy mountain service, which represented that all of the sparks which entered the front end after that time were necessarily thrown out. We, therefore, felt that little advantage might be expected from simply storing the sparks that would accumulate in going a distance of ten miles, and running a further distance of fifty or sixty miles without any further accumulation, and that it was thoroughly logical to adopt a device which would relieve the front of sparks entirely."

To sacrifice the *positive* advantages of freer steaming and reduction of back pressure, due to the employment of a larger nozzle, which are attainable with a short front, for the *doubtful* one of transporting a small quantity of cinders to a terminal in an extension front, would not appear to be good policy or good practice. That all the area of netting which is necessary can be located in a short front, has been conclusively demonstrated on numerous roads, as has also been the absolute uselessness of the cinder hopper, an additional nuisance developed by the extension craze. If Mr. Slater will conduct experiments to determine how short the front end can be made to give the engine a sufficient amount of netting for free steaming, as referred to on page 3 of his paper, I am sure that he will find a length of 28 inches from center of exhaust to front will be ample for the purpose, and will give better steaming than with a greater length of front.

Turning to actual practice, in which "nothing succeeds like success," we find the short self-cleaning front end to be adopted in what I believe to be the best and most intelligently designed locomotives in existence, viz., Mr. Marshall's 2—6—2 type of heavy fast passenger engines on the Lake Shore Road. In these engines, the distance from center of exhaust to front is only 30 inches, and in the latest design of six-wheel shifters with wide firebox, on that road, this distance is 28 inches. No cinder hopper is used or needed on either of these types, and the exhaust nozzles of the 2—6—2 engines are, I believe, 5¾ inches. Their steaming qualities are admittedly of the best, and if any engines with "spark retaining" extension fronts equal them in this regard, or surpass them as to cleanliness or freedom from fire throwing, the evidence to that effect has yet to be produced.

THE PRESIDENT: We are ready to hear from the members present now in reference to this matter.

MR. P. H. PECK (C. & W. I. R. R.): In our switching service, years ago, we, like a great many others, had diamond stacks. It was finally decided that they were setting fires along our right of way, as we ran along planing mills, warehouses and other industries in the city, so we put on a front end to catch the cinders, and from my experience with them, I agree with other mechanics that they are useless. Our engines would fill up in probably two or three hours, and after they filled up very near to the manhole in the side of the arch they would not steam as good, and had to be cleaned out frequently in order to make steam freely. I tried some self-cleaning front ends, and my experience is that they are a success; they do not throw any more fire than when we tried to catch the sparks. I do not see the object of catching the sparks and cinders if they do not set fire, as it is a very expensive operation. If there is a little hole in the front end, or they do not get the plate on airtight when they are cleaned, a great many front ends are warped and the doors cracked. We put in ½-inch liners on the bottom of the engine sheets on account of warping by the heat. I think we can do away with the extension front. I am going to put one of Mr. Slater's front ends in one of our new engines, and I

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think if we can get them short enough, so that we can get a perfect draft, we will have just the right thing.

MR. A. E. MANCHESTER (C. M. & St. P. Ry.): I have rather been opposed to any self-cleaning front end, except to this extent: I would like to see the sparks kept out of the front end entirely and burned up in the firebox, and to that extent I believe that is the best direction to work in. If the sparks go to the front end, I would like if possible to catch them all and deliver them at some delivering point on the road. There is no doubt about the point brought out in the paper, that after the spark retaining front end has filled up to a certain degree that the sparks are thrown out. My observation has been that the engine is very much more dirty after that occurs, and is very much more liable to throw out live sparks and set fires. The objectionable feature that there may be to the existing front end of today is that it does not catch sparks enough. I would favor seeing a cellar that would practically catch all the sparks. If the sparks go into the front end and pass out the stack, they certainly make the engine much more dirty than if left in the front end, and the features employed in the self-cleaning front end do not, in any way, prevent the engine from being dirty.

MR. J. KASTLIN (C. B. & Q. R. R.): On page 1 the writer says, "Many of the cinders which are drawn into the front end remain in it until a certain height is reached; the front end then converts itself into a self-cleaning front end." This, I take it, depends largely on the design of the spark arrester and the distance the engine covers between the cleaning of sparks. On the division I am connected with, the extension front used serves as a spark arrester. We have passenger runs of 206 miles and freight runs of 160 miles, and if the front end is cleaned once while going over the division, we experience no trouble from ejected sparks. We also have applied a number of self-cleaning front ends similar in design to the one shown in Fig. 2; the table is somewhat shorter and the front diaphragm is placed at an angle of 30 degrees instead of being perpendicular. This design is very satisfactory from a spark ejecting point, it keeps the front end and lower rows of flues clean, but it requires a sharper draft, and consequently can not run the engine with quite as large an opening in exhaust nozzle as is used with the spark-arresting front end. The throwing out of sparks does not prove objectionable on account of setting fires or annoyance to passengers on trains.

A. N. WILLSIE (C. B. & Q. R. R.): I have watched this matter of self-cleaning front ends for the past two years and have not as yet found any advantage in using them with engines on the division in which I am interested, especially with our class H-2 engines. To be sure, the cinders are swept out clean from around the steam pipes, but my observations lead me to believe that engines equipped with self-cleaning front ends burn more coal than the same class of engines in like service with the old style of front end arrangement which do not have any plates in front of the steam and exhaust pipes. I am unable to state why this exists, unless it is that the engine must have a sharp exhaust in order to bring the sparks through the flues and get rid of them, which necessitates a smaller nozzle. We have engines which handle trains over a 206-mile division without it being necessary to clean the front ends, and at the same time they do not fill up enough to interfere with the draft. This it seems to me is well enough, as there is ample time and pit space for what little accumulation there is in the front ends to be cleaned at terminals. I believe Mr. Manchester has the right idea when he says, "We should endeavor to keep the sparks in the firebox, or, in other words, arrange the engine so that as small a quantity of sparks will be pulled through the flues as possible." This can be done to a certain extent with the use of brick arches and allowing some air admission over the fire instead of all of it coming through the grates.

MR. G. W. CUSHING (Franklin Mfg. Co.): My experience is somewhat ancient in regard to front ends. It is quite a number of years since I had anything to do with them, but I heartily agree with Mr. Manchester's remarks that prevention is better than cure of sparks in the front end, especially when doctors (railway officials) disagree on the latter.

MR. J. W. HILL (P. & P. U. Ry.): Mr. Chairman, I have had some experience with short front end. We have been using them now for about fifteen years, in switching service principally, and my experience would lead me to say that it is the proper thing for freight and switching service. For passenger service, where you do not want to annoy passengers with cinders, I believe in the extension front end, and in order to clean them I would

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suggest that a steam ejector be put on, operated from the cab, so that the engineer can blow the cinders out at any point along the line, because there is no bituminous coal used in this part of the country which will not fill up the extension front end with cinders in a very short time, and when they do it will throw cinders just as the short front end. If you could keep the cinders from going into the front end, that would be the proper thing, but with the narrow firebox I somewhat doubt if that is possible. With a wide firebox it may be done.

MR. A. BEMENT: All I have to say regarding sparks in front ends is in reference to their being kept out. In some tests with which Mr. Willsie is familiar there was a very large reduction made in the quantity of solid fuel carried out of the firebox. This was secured by frequently shaking the grate, which kept the air passages free and open, the result being to reduce the resistance of the fire. The effect was very favorable with both wide and narrow fireboxes.

MR. H. F. BENTLEY (C. & N. W. Ry.): Mr. President, unfortunately, I was not able to look over the paper before coming here, because the Secretary omitted to send me one.

A great many things enter into the subject of locomotive front ends, and the question has to be looked at from many different standpoints. I was a roundhouse foreman a good many years, and the engineers used to come in and some of them were continually telling us that the engine would not steam; that it would be all right if we were to raise the petticoat 2 inches or lower it 1 inch or move the diaphragm one way or the other, until life almost became burdensome to us. Now anything that will do away with the petticoat and some of the other parts in the front end would, I think, be a very good thing; providing, of course, that it will not increase the fuel cost of operating a locomotive.

The front end, as suggested by Mr. Slater, does away with the petticoat pipes, which on passenger trains very often come down at inopportune moments, causing a failure, and then the superintendent wires and wants to know what is the matter with the engine, and why it did not get over the road without trouble, etc. There is nothing in the proposed front end that I can see to get out of order and give trouble. Some gentlemen think it is all right to leave the cinders in the front end and have them handled at the end of the road, and sometimes on the road, but all that costs money, and it would seem to me that if we can get the front end adjusted in such a way that very few cinders leave the firebox, and those that do will be broken up so fine, with this style of front end, that they can be carried out of the stack without danger of setting fire, it will be a very much better way of disposing of them. It has been said, that on passenger trains it possibly might be objectionable to have the cinders flying around, but with the present so-called spark arrester, the cinders do leave the stack, and that is what would happen with Mr. Slater's proposed arrangement of front end. The question of fires has been brought up, and also whether the front end that throws the cinders is a better engine in preventing the setting of fires than one that keeps them in the front end. We know positively that all the cinders will not remain in the smoke arch with any style of front end; some of them must be thrown out, and therefore I would say that we should break them up and throw them out of the stack in such a way that they could not do any damage.

In regard to the adjustment of a front end of the style suggested by Mr. Slater, I can only see two changes that can be made; if your engine does not steam you can reduce your nozzle; and if it steams too freely it can be enlarged, that being all that is necessary.

Then again, if you can do away with the cinder hopper (which is a constant source of annoyance) and also the peep hole cover and the drawing of air in the front end, I think it will offset anything else that may be objectionable. The front ends of some of our locomotives, I am sorry to say, present a very bad appearance on account of cinders collecting in them; and with leakages through the cinder hopper, etc., they burn up and cause us lots of trouble, and if we had no cinder hopper and no cinders in the front end, it certainly would be, to my way of thinking, a step in the right direction.

I have so much confidence in this arrangement, especially after reading what the Lake Shore and Michigan Southern people have done, that we are going to experiment with it, and hope later on that I will be able to give some definite information on the subject.

MR. G. W. FARMER (A., T. & S. F. Ry.): I think this subject has been pretty well covered, although the opinions have been somewhat different. The diagram shown in Fig. 2 is something a lit-

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tle different from what I have been accustomed to, inasmuch as the front plate there is vertical. Also the point brought out about that sheet back of the nozzle is something I think that has not been in very general use, but if experimented with and it is shown that it does not detract from the force of the draft in the upper flues, I think it is a good suggestion and I am glad to notice it. I also agree with several of the gentlemen who have already spoken, that anything which tends to simplify a device, make it less liable to get out of order and cost less for keeping up the ordinary running repairs, is a move in the right direction and receives my hearty endorsement.

MR. H. H. VAUGHAN (L. S. & M. S. Ry.): I believe the front end we are using is practically similar to that shown in Fig. 2, although we do not go down quite so far on the front diaphragm, and the arrangement at that point is a little different. It is giving very satisfactory results, so far as I know, and it is practically a self-cleaning front end. If a front end is practically self-cleaning, it simply delays the length of time the cinders take in passing from the flues to the stack, and gives them a chance to cool off. I do not know that I have very much else to say about the self-cleaning arrangement; although the arrangements back of the exhaust pipe in Fig. 2 give a little chance for adjustment if necessary to draft an engine a little lower than usual.

MR. BENTLEY: I would like to ask Mr. Vaughan if he has any data on fuel consumption on the engine that has been fitted up with this self-cleaning arrangement, on the Lake Shore, as compared with those that have not, or have the standard front end.

MR. VAUGHAN: No, sir, I have not.

MR. PECK: I do not think all steam nozzles steam just the same with the same arrangement of the diaphragm in the front end. I think the arrangement of the nozzle has considerable to do with it. We tried a nozzle recently on a hard steaming engine, by choking it from the tip down about four inches; choked it from the top of the tip down about four inches below the top of the same. The idea was taken from the nozzles of the injector; just in the same manner, exactly; the engine steamed beautifully. We tried it on two other engines and they are doing nicely; not a thing was changed in the front end; only the nozzle was choked from the top, from 5 inches down to 4¾ in the choke. It was done with a brass bushing. The idea was taken by the foreman from the shape of the injector nozzle, and it is working very nicely. The engine steams better and we get a better draft.

MR. R. MAXWELL (C., B. & Q. R. R.): The question of self-cleaning front ends has been pretty thoroughly discussed by Messrs. Willsie, Kastlin and Manchester, and, in fact, several others present, so there is not much left for me to say. We had two engines with self-cleaning front ends on our division; one steamed good but the other did not. The one that did not steam good we changed back to a standard front end. I think on passenger trains the front end that caught the sparks was much better than the self-cleaning front end, as the latter throws too many sparks and annoys the passengers with cinders and dirt. On freight trains it does not make so much difference. Our passenger divisions out of Burlington are long, they being 206 miles to Chicago and 190 miles to Creston. It is not often that we are compelled to clean the front end more than once on the division. I find that all the engines that we changed to self-cleaning front ends burn more coal and throw more fire than they did before.

MR. E. E. R. TRATMAN (Engineering News): What Mr. Peck says shows that we can not take any one part of the front end and consider that alone; we have to take the thing as a whole, with all the parts that are in it. In the same way I do not think we can well take the front end alone; we must also consider the boiler itself, and especially the firebox. As to the varying results which, as Mr. Slater mentions, are obtained from the same engines fitted with different front end arrangements but using the same coal, on the same road, and doing the same work, that is undoubtedly due to the fact that the personal equation is large, and there are really no reliable tests. It is largely a matter of opinion and guess, with natural personal prejudice; and there are no actual figures. I think that a great many of those opinions as to the efficiency of particular front ends are something like that of an old engineer down East, when they used to have the engines painted up so beautifully. The engines had red smokestacks, but when a new administration came in all the fancy coloring was done away with and the engines were painted black all over. But the old man claimed that his

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engine never steamed so well after the smokestack had been painted black.

PROF. G. W. BISSELL (Iowa State College): I have not had any experience with front ends, but I wish to ask if any one has had any experience with the Vanderbilt type of furnace, or others, having combustion chambers in front of the bridge wall, or fire arch. It seems as though the combustion chamber would furnish a chance for the precipitation of some sparks which would otherwise go through the flues, and if that is so, would not the sparks to a certain degree burn at that point and thus save some of the fuel which is wasted when it passes out of the front end unconsumed?

THE PRESIDENT: Has any one anything further to say? Possibly some of you gentlemen who have had something to do with the Vanderbilt boiler can give Professor Bissell a little information. If there is no further discussion on the paper, we will ask Mr. Slater to close his remarks.

MR. SLATER: Mr. Chairman, I have nothing further to add to the paper, but I might refer to the remarks made by Mr. Manchester, that the proper thing to do is to keep the cinders in the firebox. All that is true, without a doubt, and it can be accomplished to a very large extent where you have a wide firebox, a sufficient amount of grate area approaching stationary boiler practice, so that combustion is slow and cinders not carried to the front end; but there are thousands of engines in the country that have the narrow firebox, burning a large amount of coal per square foot of grate area, that will be in use for a great many years, and it is certain, in my opinion at least, that a self-cleaning front end is a safer engine against setting a fire than one with the extension front arranged for retaining sparks—and I speak of this from personal observation. An engine equipped with a front end like the one shown on No. 2 throws less sparks than any engine I have ever seen. I do not know why that is so, but it is, and it is possibly due to the vertical plate. Both front ends shown in illustrations Nos. 1 and 2 are self-cleaning, for both keep the front end clean. No. 1, with petticoat and an angling deflector plate, throws a great many more live sparks than the one fitted up like No. 2 with the vertical plate and no petticoat. Our road has engines fitted up in both ways. At night when it is very dark you can hardly see a live spark coming from the engine fitted up with the front end like No. 2. No. 1 would throw about as many sparks as an ordinary extension front end, where the diaphragm is back of the pipes, or not carried ahead far enough to be a self-cleaner. In order to have a self-cleaning front end it is necessary to have the diaphragm carried well ahead, and I found, with the size of the engine I was experimenting with, that it was necessary to bring it up to 20 inches from the front end, and then no cinders would remain in the front end at all. The back diaphragms, as shown in the cuts, are very important. They are extended down to about 18 inches, which is below the height of the top of the exhaust pipe, or below what the deflecting plate would be if that were left off, and as it is fitted up by most people; in fact, in every one I ever saw, the extension of the back diaphragm is the only thing about the front end that is original, and of course the carrying back of the netting might be considered as somewhat different from the common practice, as it is carried back as close to the exhaust pipe as possible, for the purpose of preventing too many cinders remaining on the table plate that pass through the netting. All who have had experience with a solid table plate must have learned that cinders will accumulate on top of this table plate. Cinders that have fallen on the table plate never can be picked up after they once get there.

Those who would like to experiment with the front end, I would like to remind must not forget the extension of the back diaphragm; that is very important; it makes a better steaming engine and keeps the cinders from accumulating back of the steam pipes, and also prevents the stopping of the lower flues, which is almost impossible when the back diaphragm is not extended low enough.—Western Railway Club.

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Enginemen's Course in Arithmetic

By W. S. Carter

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Mensuration

140.—A Pyramid is a solid that has but one base, which is polygon in form, and all of whose lateral sides are triangles in form and have a common vertex.

(Figs. 38, 39, 40 and 41 are pyramids.)

A *Triangular Pyramid* is one whose base is a triangle.

(Fig. 38 is a triangular pyramid.)

A *Quadrilateral Pyramid* is one whose base is a quadrilateral.

(Fig. 39 is a quadrilateral pyramid. In like manner all pyramids may be described by the number of sides in the perimeter of their bases.)

A *Right Pyramid* is one whose base is a regular polygon and whose vertex is in a line perpendicular to the center of its base.

(Figs. 38, 39 and 40 are right pyramids.)

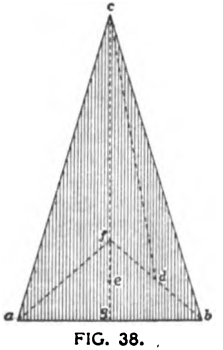


FIG. 38.

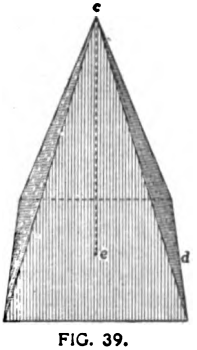


FIG. 39.

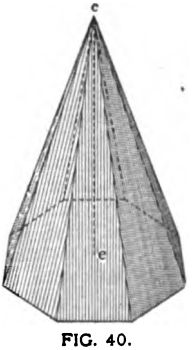


FIG. 40.

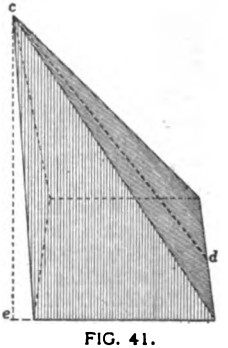


FIG. 41.

An *Irregular Pyramid* is one that is not a right pyramid.

(Fig. 41 is an irregular pyramid.)

The *Axis* of a right pyramid is a straight line that passes through the vertex and the center of the base.

(In Figs. 38, 39 and 40 *c e* is the axis of each pyramid.)

A *Frustum of a Pyramid* is one from which a portion has been cut off by a plane parallel to the base.

(In Fig. 42 the plane *a b c* is parallel to the base *d e f*, cutting the upper portion of the pyramid and leaving a frustum of a pyramid.)

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A *Truncated Pyramid* is one from which a portion has been cut off by a plane that is not parallel to the base.

(In Fig. 43 the plane *a b c* is not parallel to the base *d e f*. It cuts off the upper portion of the pyramid, leaving a truncated pyramid.)

The *Altitude* of a pyramid is the perpendicular distance from its base line to its vertex.

(In Figs. 38, 39, 40 and 41 *c e* is the altitude of each pyramid.)

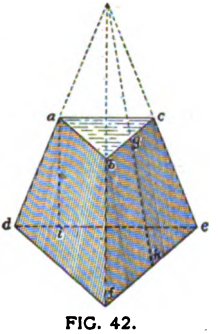


FIG. 42.

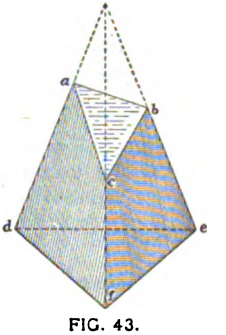


FIG. 43.

The *Slant Height* of a pyramid is the altitude of the triangle that forms one of its lateral sides. The slant height of a frustum of a pyramid or of a truncated pyramid is that part of the slant height of the pyramid remaining between the two bases.

In Figs. 38, 39 and 41 *c d* is the slant height. In Fig. 42 *g h* is the slant height of the frustum of the pyramid.

141.—Propositions Relating to Pyramids.

Prop. XXXI.—The area of the convex surface of a pyramid is equal to the perimeter of the base multiplied by one-half of the slant height.

In Fig. 39 let us presume the base to be 1 inch square and the slant height *c d* to be 2 in.; then, the perimeter of the base (4 in.) × one-half the slant height (1 in.) = 4 sq. in., which is the area of the convex surface of the pyramid.

Prop. XXXII.—The volume of a pyramid is equal to the area of the base multiplied by one-third of its altitude.

In Fig. 41 let us presume the area of the base to be 4 sq. In. and the altitude *c e* to be 3 in.; then, the area of the base (4 sq. in.) × one-third of the altitude (1 in.) = 4 cu. in., which is the volume of the pyramid.

Prop. XXXIII.—The area of the convex surface of the frustum of a pyramid is equal to one-half the sum of the perimeters of the two bases multiplied by the slant height.

In Fig. 42 let us presume that each of the sides of the base *a b c* to be 5 in. and each of the sides of the base *d e f* to be 10 in, aud the slant height *g h* to be 9 in.; then, one-half the sum of the perimeters ($\frac{15 \text{ in.} + 30 \text{ in.}}{2} = 22.5$ in.) × the slant height (9 in.) = 202.5 sq. in., which is the area of the convex surface of the frustum of the pyramid.

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Prop. XXXIV.—The volume of a frustum of a pyramid is equal to the sum of the areas of the two bases, plus the square root of their product, multiplied by one-third the altitude.

In Fig. 42 let us presume that the area of the base $a\ b\ c = 6$ sq. in., the area of the base $d\ e\ f = 24$ sq. in., the altitude $a\ i = 3$ in.; then, the sum of the areas of the two bases is 30 sq. in. The product of the two areas = 144 sq. in., and the square root of 144 is 12, which, added to the sum of the two bases, is 42 sq. in. Then, 42 sq. in. × one-third of the altitude (1 in.) = 42 cu. in., which is the volume of the frustum of the pyramid.

Prop. XXXV.—The volume of a truncated pyramid is equal to the sum of the areas of the two bases, plus the square root of their product, multiplied by one-third of the average altitude.

It will be noted that Prop. XXXV is the same as Prop. XXXIV, except that the *average* altitude is taken. In Fig. 43 let us presume that the pyramid is truncated by the plane $a\ b\ c$ in a manner that leaves the altitudes at the three corners as follows: at a, 10 in.; at b, 8 in.; at c, 6 in.; then the average altitude is $\frac{10 \text{ in.} + 8 \text{ in.} + 6 \text{ in.}}{3} = 8$ in.

142.—Problems Involving Areas and Volumes of Pyramids.

Prob. 35.—Suppose Fig. 38 to be a pyramid with the following dimensions: $a\ f = 10$ in.; $f\ b = 12$ in.; $a\ b = 11$ in.; $c\ d = 18$ in.; $f\ g = 10.66$ in. (*a*) What is the area of the convex surface of the pyramid? (*b*) What is the area of the entire surface of the pyramid?

Ans. (*a*) 297 sq. in.
(*b*) 355.63 sq. in.

From Prop. XXXI. (*a*) The perimeter of the base is 10 in. + 12 in. + 11 in. = 33 in. One-half the slant height is 18 in. ÷ 2 = 9 in. The perimeter of the base (33 in.) × one-half the slant height (9 in.) = 297 sq. in., which is the area of the convex surface.

(*b*) The area of the base of the pyramid is as follows: $a\ b$ (11 in.) × one-half of $f\ g$ (5.33 in.) = 58.63 sq. in., which added to the area of the convex surface (297 sq. in.) makes the entire surface of the pyramid 355.63 sq. in.

Prob. 36.—Suppose Fig. 38 to be a pyramid of the following dimensions: Area of base = 100 sq. in.; altitude $c\ e = 15$ in. What is the volume of the pyramid? *Ans.* 500 cu. in.

From Prop. XXXII. The area of the base (100 sq. in.) × one-third the altitude (5 in.) = 500 cu. in., which is the volume of the pyramid.

Prob. 37.—Suppose Fig. 42 to be a frustum of a pyramid with the following dimensions: Perimeter of the base $a\ b\ c = 10$ in.; perimeter of the base $d\ e\ f = 50$ in.; slant height $g\ h = 10$ in. What is the convex surface of the frustum of the pyramid? *Ans.* 300 sq. in.

From Prop. XXXIII. The sum of the perimeters of the two bases is 10 in. + 50 in. = 60 in., one-half of which is 30 in., which multiplied by the slant height (10 in.) gives for the area of the convex surface of the frustum of the pyramid 300 sq. in.

Prob. 38.—Suppose Fig. 43 to be a truncated pyramid with the following dimensions: Area of the base $a\ b\ c = 25$ sq. in.; area of the base $d\ e\ f =$

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500 sq. in.; altitude at $a = 33$ in.; altitude at $b = 28$ in.; altitude at $c = 20$ in. What is the volume of the truncated pyramid? *Ans.* 17,193.6 cu. in.

From Prop. XXXV. The sum of the areas of the two bases is 25 sq. in. + 500 sq. in. = 525 sq. in. The product of the two bases is $500 \times 25 = 12{,}500$, of which the square root is 111.8 sq. in. The sum of the areas of the two bases (525 sq. in.) + the square root of their product (111.8 sq. in.) = 636.8 sq. in. The average altitude is $\frac{33 \text{ in.} + 28 \text{ in.} + 20 \text{ in.}}{3} = 27$ in. Then, 636.8 sq. in. $\times$ the average altitude (27 in.) = 17,193.6 cu. in.. which is the volume of the truncated pyramid.

Labor's Critics

"I believe in labor unions," said the College President,
"But I think I could improve upon their rules.
If with what the masters chose to give, the members were content;
If they handed the non-unionist their tools,
And patted him, like brothers, where his backbone ought to be,
And said, 'Pray take our job for what you'll get,
For our rights are nonconflicting in this country of the free—
We're just as free to starve as you to sweat!'
If they strained their every nerve to turn out piece-work by the heap,
Till the masters in alarm cut down the rate;
If they welcomed in apprentices to do work on the cheap—
Why, then I think trades unions would be great!
With these few and slight restrictions, which are well and wisely meant,
I approve of labor unions!" said the College President.

"I believe in labor unions," said the Bishop to his flock,
"Provided that they do not go too far;
For the violence that boycotts and does injury to stock
Is only fair in military war.
Let nation threaten nation (if the last's of smaller size)!
Let them righteously maraud and murder, too!
But unionists should never let their angry passions rise,
For that is such a naughty thing to do!
They should strike in white kid gloves and patent-leather dancing-shoes,
And take little mincing steps to gain their ends.
If they'll behave like gentlemen, of course I'll not refuse
To be among the stanchest of their friends.
If there's nothing in their actions that our Christian nerves will shock,
I approve of labor unions," said the Bishop to his flock.

"We believe in labor unions," say the Editors of tact,
Provided they are always nice and good:
For the workingman's an angel; like an angel he must act,
And not like ordinary flesh-and-blood.
Although his sick wife freeze, he must be silent as a clam—
Strong words, of course, would never be polite:
He must bear the worst injustice with the meekness of a lamb,
That so he may be always in the right.
If the widow's mite be grabbed from her, she must not make a fuss,
For that is hardly ladylike, you know!
She must show an equanimity such as you see in us,
As cheerfully we bear our neighbor's woe!
If they never make mistakes, and will always take a hint,
We approve of labor unions," say the Editors in print.

If the President had logic, and the Bishop had more sense,
And the Editors' remarks were never trite,
They might help to solve the problem as to how, in self-defense,
The workers' labor unions ought to fight.
Still, they are but fellow-mortals, and no doubt they've done their best.
I approve of College Presidents, and Bishops, and the rest!

—Annie C. Muirhead, in the Outlook.

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Lame Johnny's Gratitude

By W. L. French

LAME JOHNNY lived on the edge of a creek that wound its way along the edge of the Black Hills, twisting through the canyons down to the Cheyenne River and, by virtue of his being the oldest settler, the creek now bears his name. Lame Johnny was the only name anyone in the Western country knew that he ever possessed; doubtless he had another name back in the Eastern land and either he had lost it in his wanderings or, for reasons of his own, allowed it to drop into the oblivion of the past along with many other things concerning himself. Lame Johnny was not of a very prepossessing of manhood. He was gray and grizzled and thin and bent, and he limped as he walked from an injured ankle that had been splintered by a bullet some time during his career. He put one in mind of a bit of seasoned hickory that would bend and twist much before breaking. Long miles of tramping through the Hills or of sleeping out had no terrors for him. He was not the kind of a man one would select for a heroic act, yet from the very nature of the life he lived of exposure, hardship and danger he would do such an act without realizing that it was anything out of the ordinary.

Lame Johnny preferred horseback riding when possible and, as he never bought a horse in his life, it was usually one of some cattleman's that did him the service of carrying him through the sand hills, and unless pushed hard by the owner or his men the horse in the end brought up in some eastern market to be sold. Lame Johnny was one of a gang of "rustlers" scattered through the cattle country and, while posing as honest settlers, stole horses and rustled cattle and, if business was dull in those lines, robbed a stage coach to liven things up.

The fact of the pretended honesty of them, and their being scattered so widely apart in a thinly settled country made their detection and punishment an almost impossible matter until the vigilance committee, that grim, unswerving administrator of Western justice, was organized and swept through the cattle country arresting, trying and executing thieves in an hour that the law had dallied with for years and, while the committee did not get them all in the first "round up," as it was termed, the strength and perfect organization of the gang was broken, and gradually the rest of its members were "wiped out." For those who really desired law and order better times were coming.

Rumors of a coming railroad were spreading through the sand hills, a forerunner of peace and law. It was coming as rapidly as the work could be hurried along, and with it, as its constant companion, traveled the telegraph with the power of quick communication, and in their wake would come the people to settle this new country, and coming from old settled communities where law abided would plant the standard of peace and justice in their new homes, and the lawless element would be forced into living orderly lives or else living none at all.

Still the lawless ones hardly realized the change that was coming in their old haunts. Some of them scorned the thought that "two streaks of rust," as they contemptuously termed the railroad, could make any change in the existing order of things in the far stretching sand hills. They had yet to learn of the civilizing power of the railroads.

The railroad came and crossed the creek a short distance below Lame Johnny's cabin and pushed on into the Northwest. Lame Johnny watched the men at their toil and mingled much with them, and for a time he became dissatisfied with the life he was living, but after the men had gone on with the railroad he dropped back into the monotony and wickedness of his old life. In fact, he was worse than ordinary after this quiet spell.

Stealing horses, rustling cattle, and robbing stage coaches grew to be an active industry, and the cattlemen grew more and more enraged until finally, driven to desperation, they became openly hostile, and bands of angry cattlemen rode here and there through the sand hills hanging every man known to be a suspect, and it

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was an exceedingly poor time to be caught in bad company. From away to the east and south they came spreading out like a fan as they advanced to the northwest up into the edge of the somber Black Hills. They hanged them on the pine trees on the mountain side, on the whispering cottonwoods along the streams and, where trees were scarce, on telegraph poles and road crossing sign posts.

Lame Johnny was one of the marked men and he was well aware of it, and realized his danger when rumor reached him of the events transpiring among the sand hills. He finally decided that it was best for him to get out of the country for a few months if he desired to live, and he was making preparations to that end late one afternoon when, on looking across the prairie, he saw a group of some half dozen horsemen riding toward his cabin. He could not determine at the distance they were away whether they were friends or enemies. Long exposure to danger had taught him caution, and picking up his rifle he stole out of the cabin down to the edge of the creek whose high banks hid him from view and worked his way along the stream to where he had kept his horse concealed since the first rumors of danger reached him. He crept up to the top of the creek bank and looked cautiously toward his cabin about which the horsemen were gathered. It was evident by their actions that they were strangers about the place. After satisfying themselves that he was not in the building they commenced to search about for him, and one of them discovering some scattered footprints in the sand forming a broken trail toward the creek they all started in that direction and Lame Johnny realized that he must run for it and trust that his fresh horse would distance their jaded ones. To decide was to act, and a moment later Lame Johnny rode his horse up the opposite bank and struck out boldly to the north. He was observed at once and his enemies immediately rode forward in full pursuit.

Lame Johnny had not only the advantage of a fresh horse and of a good lead but also of knowing the lay of the country perfectly. He soon discovered that he needed all of these for his pursuers were the best mounted and were gaining on him steadily. Evidently they had come forth prepared for an occasion like the present. His only hope lay in night coming on and aiding him in his escape, but even that was denied him, for as the sun faded from sight behind the western hills the big white moon came smilingly up in the eastern sky and there was no darkness to help him. Some of his pursuers were within gunshot and an occasional bullet sang spitefully past in Lame Johnny's neighborhood, but he could not reply without turning about in his saddle, and he could not spare time from guiding his horse for that, and there was small chance of making a successful shot at the pace they were riding, for he was riding for his life and so were they. He determined to ride out across the creek and the railroad and deep into the sand hills where, perhaps, he could elude his enemies; if not he would surrender. Down the creek bank he rode and in another instant his horse was wallowing in a bed of quick sand, mired hard and fact, and steadily sinking deeper. There was no time for lingering. Lame Johnny balanced himself on the animal's back and leaped safely to the other bank up which he ran and there, standing on the railroad track with its rear lights twinkling in the moonlight stood a freight train, the engine down by the water tank getting water.

Straight toward the way car Lame Johnny ran. The conductor standing out on the rear platform had witnessed the whole drama out under the moonlight and, knowing something of what was then going on in the cattle country, and not wishing to be involved in any of their troubles, when he saw the figure of the pursued running toward the car he swung his lantern high in a signal to the engineer to leave town. As it raised the second time in the air the globe was shattered by a rifle ball and the light went out. The horseman who had stopped on the other bank of the creek in an endeavor to find a place to cross, that was free from quick sands, had observed the signal and, fearing their man would escape on the train before they could cross and secure him, had shot out the light. The engineer had seen the signal and when he heard the shot that put out the light he realized there was some trouble behind that the conductor wanted to escape, and he pulled out of town with a vengeance just as Lame Johnny scrambled up on the back platform of the way car.

"What do you want here?" asked the conductor shortly.

"A ride out of the country," said Lame Johnny, panting from his recent severe exertions.

"So it would seem. Come inside; this is a poor place just now for a discussion," said the conductor, as a bullet buried it-

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self in the wood of the car a few inches from his body.

The conductor entered the car and for an instant Lame Johnny paused on the platform as though inclined to shoot back at his enemies, some of whom had succeeded in crossing the stream and were riding wildly after the train and firing often at the fast receding car, and then followed him in.

"What is the meaning of what I saw just now? Why do these men seek your life? I am not certain but that I am doing a wrong to society in aiding you to escape by allowing you in this car," said the conductor.

"These men claim I am a horse-thief and cattle rustler," replied Lame Johnny.

"If you are innocent you could prove it," said the conductor.

"I am not sure I am innocent, and I am sure that I could never prove it to those gentlemen, even if I was. Their way of conducting a trial is too rapid for me and I am glad to bid them good-bye," replied Lame Johnny.

The conductor reflected. Morally he ought not to allow this man on his train. On the other hand, hanging a man for stealing a horse seemed out of all reason to him.

"Well, you have escaped this time. Let me advise you to cut that business out in the future. It might prolong your life several years," said the conductor.

"I reckon you're right," murmured Lame Johnny softly.

Fifty miles down the line Lame Johnny left the car and disappeared in the darkness. He was aware that it would have been an easy matter for the conductor to have betrayed his presence to the cowboys at some of the small towns through which they passed, and at some of which were cowboy camps engaged in the fall shipments, and when he went away he expressed his gratitude in a few words.

After the first spasm of law and order had subsided Lame Johnny returned to his cabin where he might have lived and died in the course of nature undisturbed by the law or its servants, had he been content to lead a peaceful honest life, but he believed with others of his kind that the old days of lawlessness would return, and this belief coupled with its consequent acts ultimately cost him his life. Lame Johnny kept in view the conductor who he deemed had done him such great service in his escaping from the "Vigilants," and he knew that he had been promoted to a passenger run and went north one day and back the next except Sunday; the line being new the service was not exacting.

Late the next spring after his experience with the Vigilants, Lame Johnny was sitting in his cabin listening to the roaring of the creek as it rushed by his habitation. It had been raining hard but had ceased; it was evident from the noise of rushing water and the rapidity with which the creek was rising that farther up where it started in the Black Hills the rain had been more severe and, like all mountain or semimountain streams, its waters rose rapidly after a rain. Lame Johnny went to the door and looked out. The creek was bank full and running like a mill race. An idea seemed to occur to him and, putting on his hat, he walked out and down the stream a short distance to where the railroad crossed it. The bridge was gone and the rails at each end of the bridge had been pulled far out of line as the bridge gave way.

"Just as I thought," growled Lame Johnny to himself. "Them engineers said, when I told them the creek got real high once in a while, that they knew how much country it had to drain, but I reckon they didn't figure on how fast it would have to do the work by the looks of that bridge."

"Let's see," he continued to himself, "that conductor friend of mine goes up Monday and this here is Thursday, so he will be coming down, and they get along here about dark, and the sun is just going down now. That's a mighty poor place to let a friend drop into and I reckon I'll have to see what I can do."

There was one thing certain; to stop the coming train he must cross the stream and, while it was not over twenty feet across, the speed of the water and its depth made the undertaking one of great danger. Lame Johnny walked up the stream in the direction from which the train would come, looking for a favorable place to make the attempt to cross. At length he found a place that seemed favorable for the undertaking where the stream made a sharp bend to the west, and by going up some little distance and springing as far out from the bank as possible Lame Johnny believed he could make the crossing. He thought of leaving his revolver behind, but experience had taught him never to let the weapon be far from him. Gathering all his energy he took a short run down the bank and sprang as far out as he could and landed fairly in the center of the rushing stream where he was tumbled, rolled and tossed about like a piece of driftwood. He had

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not judged the water to be as swift and powerful as it was and, handicapped by his clothing and his crippled limb, be found that it was going to require a terrible struggle to ever reach land again.

Lame Johnny manfully made the battle. It was not long. Human endurance could not have sufficed long to exist under such conditions, and when Lame Johnny, grasping some low growing willows on the bank at the point of the bend, drew himself out of the water and lay on the bank panting from the force of his exertion he realized how close again he had been to death but, like similar past experiences, it was soon forgotten.

Already darkness was coming on. He must be up and doing. He got up and climbed the grade to the railroad track and walked along it as fast as he could, watching for the expected train, and here it comes! its headlight shining out clear in the darkness. Lame Johnny waved his arms frantically up and down in an endeavor to warn them. There was quite a stretch of straight track here and he forgot that he could see their light long before it would reveal him to them. Surely the engineer could not be looking, he thought, and he wondered if there was any way he could arouse his attention and, like any border man, his pistol was the first means that came to his mind. He was not sure of it either after going through the water, but he jerked it from its holster and six points of light, one after the other, shot up in the air to warn the approaching engineer, who saw them all, and a moment later by the light of the headlight he saw a man standing in the center of the track and wildly flagging him to stop. He brought the train to a stand some distance beyond Lame Johnny, that individual holding his ground until almost run over before he would yield the right of way to the train.

The engineer got down on the ground to explain to the conductor who came hurrying ahead to learn why he had stopped, and while they were talking Lame Johnny who had followed the train joined them.

"Are you the man that stopped me?" asked the engineer as he observed him.

"Yes," answered Lame Johnny.

"Why?" asked the engineer.

"The bridge down there over the creek is gone and I thought perhaps you wouldn't have any better luck jumping it than I did, and you see I'm tolerable wet," replied Lame Johnny.

"Haven't you and I met before, not far from this same place?" asked the conductor, as he flashed the light of his lantern on him.

"I rather think we have, and if we hadn't we would not be meeting now, you understand? I don't owe the railroad anything," replied Lame Johnny.

Some of the passengers came up at this moment, and when the conductor looked around again to where Lame Johnny had stood he had vanished in the darkness. There were too many people about to suit him and, perhaps, he did not care to be burdened with thanks.

Late in the summer the conductor heard that the "Vigilants" and Lame Johnny had again met and he was made to travel the same road that many of his former associates had been compelled to travel before him.

The Cost of War.

Give us the gold that war has cost,
We'll clothe each shivering wretch on earth
In needful, nay, in brave attire;
We'll build asylums for the poor,
By age or ailment made forlorn;
We'll link each alien hemisphere,
Help honest men to conquer wrong;
Art, Science, Labor nerve and cheer,
Reward the Poet for his song.

In every free and peopled clime,
A vast Walhalla hall shall stand;
A marble edifice sublime,
For the illustrious of the land;
A Pantheon for the truly great,
The wise, beneficent and just;
A place of wide and lofty state
To honor or to hold their dust.

—The Progressive Thinker.

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The Brotherhood of Man

By Lizzie M. Holmes

HALF WAY up the slope of the West Spanish Peak, on the Wahatoya, stands a building, half farm house, half summer hotel. The scenery all around is wild, rugged, beautiful in the extreme, and the silvery Wahatoya dances down the rocks between banks several hundred feet high, and the grand old peak towering above forms a fitting background to the whole. It is a favorite summer resort to those who know of the spot, and the invalid is blessed who discovers it. It is kept by an old couple who settled there years ago with the sole purpose of gaining a home cheap, without thought that its beautiful and healthful situation would sometime entice numerous visitors. Very few people have ever heard of the place and those few are fortunate—more so than those who resort to greatly advertised, high-priced retreats that are noisy and fashionable.

These people have one daughter, whom they sent away to school when she was fourteen. Recently she finished school and came home, bringing a friend with her, a young lady daughter of wealthy parents, beautiful, stylish, fascinating, and already a belle in society at home.

Geraldine Ainsworth knew she was beautiful and she was very vain; but so well-bred that this fact was not noticeable ordinarily. She was bright, witty, refined in her tastes and loved to be loved so well that she consented to be affectionate now and then that she might have warm friends and admirers. Thus it was between the farmer's daughter, Grace Lyndon and herself. Grace was a sensible girl that a fashionable boarding school had failed to spoil; not as beautiful as her friend, she was withal pretty, graceful, strong and healthy and a great favorite with all who knew her.

The two girls sat together on the rustic porch one afternoon, lazily reading, now and then exchanging a desultory word, and quietly enjoying the sweet afternoon, in their own fashion. Suddenly they saw a dusty, rather seedy looking individual coming up from the front gate which was some distance from the house. Geraldine sprang up and exclaimed:

"Oh, gracious! There is a tramp coming and not a man within call. What shall we do?"

"Hush! Don't tell him of it the first thing. I do not think he means any harm and I am not in the least afraid of him."

The man came up and politely lifted his dusty slouch hat. He seemed a fair looking man, though his clothes were old and very dusty, his hair, beard and shoes being covered with it.

"Pardon me, ladies, I am a lost and belated traveler. I started to climb the peak this morning from the little village below, and got off the trail in some way, and have been wandering around aimlessly ever since. I lost my lunch bag up among the slide rocks somewhere, and so, am very hungry. Could I obtain something to eat here and an opportunity to rest awhile?"

"Tell him to go on to the next ranch, Grace. He is only a common tramp for all he uses good language; you know some of them pick it up very readily," Geraldine said in a stage whisper quite intelligible to the stranger. Grace did not heed her but answered the man:

"Certainly, sir. Come in and sit down; or while I get you something to eat, you may like a chance to wash."

The man thanked her and followed through the long hall into the big kitchen which was the principal living room of the house and as clean and bright as sand and scrubbing could make it. Outside the back door was a fine spring and a wash bench supplied with basins, soap, towels and brushes, and thither she directed him to make his toilet while she stirred up the fire which was never allowed to go out, put on the coffee pot, sliced some ham, warmed the biscuits and potatoes and prepared a very appetizing meal. When he entered to sit down at the kitchen table, he looked much better, for he had shaken and brushed his clothes and washed himself very clean. But he still looked a little odd, for his hair was wet and plastered close down

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over his forehead, and his coat was buttoned to his throat, hiding his linen or the lack of it, one could not tell which, and his trousers were still turned up at the bottom. Grace addressed a few commonplace remarks to him in an easy, cordial manner, told him to eat all he wished and went out to join her friend.

"I am astonished, Grace," Miss Ainsworth commenced. "Do you invite such people into the house, feed them at the table and then go away and leave them alone with the spoons?"

"Why, yes. He is a human being and apparently not a bad one. We do not know that he is not honest. We do not even know that he is a tramp. My mother never turns any one away who asks for something to eat."

"It's a wonder you are not all robbed and murdered in your beds some night."

"Oh, Geraldine, you should have more faith in your fellow-creatures. But we are in no danger at the worst. John and Dave are out in the barn at work and I could call them here in a minute if it were necessary."

"And listen at you—speaking so familiarly of your work hands as though they were your intimate friends."

"Why shouldn't I? Those boys have been raised in this neighborhood. I have known them ever since I was a little child; their parents are as respectable as my own. Why should I not call them by their given names?"

"I really can not understand your queer social conditions out here. One person seems to be as good as another, tramps are served at the dining table and real estate owners work out for wages the same as the common people. But don't you think it is time for your father and mother to be home from town? I hope they will bring me some letters. And they are to bring with them the gentleman they were mentioning this morning, Prof. Roedinger of scientific fame, who is so rich and so good besides. He is to spend his vacations here in the mountains, it seems; though how any one can enjoy a vacation and expect to climb over these peaks and rocks and geologize and carry great weights of specimens, I can't conceive. It would be refreshing to meet a gentleman once more—your cowboys are picturesque and chivalric, but they are uncouth and are constantly startling one."

"Oh, you would get accustomed to them after a while. They are really very good hearted, and would protect or defend you with their lives if you needed such defense. Yes, I should like to see Professor Roedinger, for besides being so wise, I am told he is a very noble man. I should like to listen to his conversation."

"I hope he will not want to be listened to all the time; he ought to have the knack of paying attention to others part of the time. I am really quite anxious to meet him—I consider it very fortunate that I happened to be here just as the gentleman is taking his vacation."

At this moment the supposed tramp came around from the kitchen outside the house. He carried his hat in his hand and bowed a little awkwardly as he said:

"I thank you very much indeed, young ladies, for your kindness, and I beg your pardon for the trouble I have made you. Your parents are not at home?"

"They will soon arrive," Geraldine hastened to assure him haughtily.

"With your permission I will wait for them," he said as he nonchalantly sat down upon the lower step of the porch beneath the shade of the oak at the corner of the house.

Geraldine's face became a study.

"The audacity! Did you ever hear of the like?" she muttered in a not very low tone and turned her back upon the man. He apparently did not notice it, but remarked easily as though his position was assured:

"This is a beautiful spot and it must be quite healthful. The pure, fresh, pine laden air, the clear spring water, this nearness to nature—all combine to make it an ideal resting place. Do many people come here in the summer?"

Grace was answering with a pleasant smile that quite a number of people from distant cities found their way to them before the summer was over, when Geraldine turned around with a haughty face and in a cold, proud tone said:

"Do you realize, you fellow, that you are very presumptuous and impudent to seat yourself in our company and undertake to join in our conversation without being asked—without even being tolerated? Take yourself at a distance or I will call in the men from the barn to deal with you. How dare you crowd yourself upon the society of your superiors?"

"Oh, Geraldine, Geraldine! Don't!" whispered Grace in great distress, putting up her hand to the lips of Geraldine to check her.

"I will!" answered Geraldine. "I resent such actions in a strange tramp and I will speak if you are afraid to do so."

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"But my father and mother would be greatly pained. They will not have people treated so, whoever they are."

The man had arisen to his feet and his face was suffused with crimson.

"Have I behaved in any way dishonorably, or disagreeably, ladies? If I have I crave your pardon and will take myself away as quickly as possible. Is there anything about my person or my behavior that should forbid your forbearance for the few moments I asked to stop and rest, and await the coming of the master of the house?"

"Certainly not, sir," answered Grace with a conciliatory smile as she slipped her hand through her friend's arm as if to pacify her at the same time. "My friend here does not understand the ways of our western country yet; you are welcome to stay as long as you like."

"I did not know that common humanitarian sentiments were mere local matters. But if I have been lacking in due respect in the slightest degree, I have not intended it and would beg your forgiveness on my knees. I know I have spoken to you without a proper introduction, but under the circumstances of my accidental need and the lack of any one to present me this seemed necessary."

"It is all right, I assure you. We are not so particular about introductions here where strangers are likely to come upon one another at any time. There, I see my father and mother coming down the road. They will welcome you, I am sure—"

"I will go and meet them and relieve this young lady of my presence."

He put on his big hat that he had been rather awkwardly fumbling betweeu his fingers, and walked away.

Geraldine looked scornfully at Grace and she playfully tweaked her ear.

"You do not understand us, Gerrie, dear; we do not stand on ceremony here, as you must in the city. This man may be some honorable person who has come to see my father on business, and it accidentally happened that he needed something to eat. It is not considered anything out of the way to ask for food when one is wandering among the hills, and no one ever refuses it."

"I can't endure presumption. I like to see people keep their places wherever they are. Will you see if there are any letters for me and I will go upstairs."

"Yes, dear; but you are not to be offended with me, so I will go with you and will not leave you until you have forgiven me."

Grace met her mother at the kitchen door and received several letters for herself and Geraldine. The girl who "helped" with the work—they have no "servants" in these regions—had gone with Mr. and Mrs. Lyndon and now came in with her arms laden with packages brought from town. Grace went upstairs to join her friend and effect a reconciliation.

The girls did not appear again until the six o'clock meal, which was the most important one of the day though hardly a "dinner." When they entered the dining-room they found a stranger with Mr. Lyndon, a gentleman in a fine black suit and immaculate linen, with a wealth of wavy brown hair thrown back from a high, noble forehead, an imposing presence, and the deepest, kindest eyes in the world. But he also looked familiar somehow, and when Mr. Lyndon, in an animated mood, hurried to present him, saying:

"Ah, here is my good daughter and her friend, Miss Ainsworth. Young ladies, I feel honored in being able to present Prof. Roedinger," they knew that the gentleman was no other than the tramp of the afternoon.

Grace felt a momentary embarrassment, but then she had nothing to regret, and she advanced to say with a smile and a graceful bow:

"I am glad to know you, 'properly,' Professor, and so happy to be able to resume our acquaintance on a substantial basis," and frankly gave him her hand. But Geraldine's face was a study. She had called this gentleman, upon whom she had desired to make a good impression, a "fellow," and threatened him with the hired man! What was she to do? She dared not even look up at him. But he approached and offered her his hand, saying:

"You are not to blame, Miss Ainsworth, for thinking me an intruder; I, no doubt, carried out the impression I first made but too well. Only accept my acquaintance now, and all is well."

Geraldine allowed him to hold her cold fingers for a brief moment, but she could not think of a thing to say, she who was generally so ready with an answer on every occasion. She bowed stiffly in silence and allowed herself to be led to a seat, into which she sank helplessly. The others ignored her evident embarrassment and carried on a pleasant conversation into which they tried to draw her, but she could not recover her spirits, and shortly after supper excused herself and disappeared.

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But, of course, it was impossible for three young people thrown together in a comparative wilderness as were they, to remain cold and alienated from one another long. Geraldine's awkward feeling wore off in time, and the three had many a trip over the mountain rocks, helping the Professor gather his geological specimens, sometimes fishing for mountain trout, and again exploring deserted mines and small natural caves. Their excursions were very enjoyable, for the Professor was at home on almost any subject that could be introduced, and the young ladies were bright and ready to be interested and to appreciate whatever he had to say. But when he came to talk on economics, which he did ably and from a liberal standpoint, Geraldine could not follow him. She had been thoroughly drilled in the conventional school, and believed in classes and caste, and the rights of the rich and the duties of the poor. She showed such an inherent selfishness and so thorough a lack of comprehension of the spirit of universal brotherhood that the Professor grew discouraged and came to speak of these subjects very seldom when she was near. But to Grace, who became wonderfully absorbed in these topics, he poured out all his hopes and fears and plans, until she was as enthusiastic as himself.

But the brightest days pass, and when Prof. Roedinger's vacation came to an end, they were all rather depressed in spirits. Geraldine had planned on that last day to have one last talk with Prof. Roedinger alone, but he did not seem to second her desire and the interview did not occur. But after sunset, when the dusk was making great shadowy phantoms of rock and shrub and tree, and Grace, after feeding her pet chickens, stood leaning over the back gate under the shadow of a huge box elder, thinking sadly of the emptiness that would come into her life after tomorrow, Herbert Roedinger sought and found her there. He told her the old, yet ever new story of love and asked if he might come again. Grace was too frank and straightforward to be coy and evasive; she let him see how glad she would be to welcome him back, and the parting the next day was not at all a sad one, for when he was to come the next time they would be happier than ever before. Father and mother had been told, and were willing that so good a man should have their beloved daughter to keep and to hold, to love and protect so long as life should last.

Strikin' 'Gin the Law

Tune—"Wearin' of the Green"

By Ed. E. Sheasgreen

Oh, neighbor Beed! Say, did you read
Your paper through today?
A jedge agin has tied by law
Free labor—by his say.
The laborin' man no more may strike,
Or even leave his place,
For should he, an injunction, sir,
Would slap him in the face.

I met with One-Eyed-Choppy-Boy;
He looked the other way,
An' told a friend, a Choppy, too,
The swells had right o' way;
An' that they'd call the soldiers out
To shoot things in the jaw,
Should once the laborin' man be caught
A strikin' 'gin the law.

Oh, many a jedge has sold himself
For gleamin' coins of greed,
An' trampled underneath his feet
The rights of all men freed;
An' often penned men in a pen—
For instance, Idaho—
An' jailed 'em up—an' bound 'em down.
No matter where they'd go.

When a jedge can crush ten thousand men,
An' ten a million more
With naught but bits of *paper*, sir,
Bedecked with words galore,
'Tis time the laborin' man should shoot—
An' shoot 'em in the jaw!
By castin' ballots—*paper*, *too*—
To kill this kind o' law.

Then since once more we're fast, me boy,
An' slavery comes in sight,
Let's grasp each other's hand more firm
An' battle for the right;
An' should injunctions heap as high
As ancient mountain dome,
We'll sing a song that sure will cheer
Our work, or humble home.

So line up boldly, solidly,
The tightenin' chains to break!
Stand firm! Stand pat! Keep courage up,
For wife an' childer's sake,
An' once more strike—each mother's son—
An' strike' em on the jaw,
By castin' ballots—*papers true*—
Agin this jedge-made law.

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The Wabash Trouble Settled

AFTER a controversy of several years' standing, the Wabash Railroad Company and its locomotive firemen and trainmen have reached an agreement satisfactory to all concerned. Regardless of what has occurred in the past to disturb pleasant relations, henceforth it is hoped that officials and employes will do all they can to advance the interests and welfare of the Wabash property. This great line of railway is one in which the entire country may well take pride, and how much better—better for the staff, better for the stockholder, better for the public—it will be to have harmony between those who work for salaries and those who work for wages.

The following are the terms of settlement, which were published in the press dispatches:

Twelve per cent. increase for conductors, brakemen and baggagemen in the passenger service and 15 per cent. for conductors and brakemen in the freight service over the rates which existed January 1, 1902, west of the Mississippi River.

For the firemen increases were granted on the Canadian lines in accordance with the Canadian Southern Division of the Michigan Central. On the lines in the United States material increases and improvements in the working conditions were granted the firemen.

East of the Mississippi River the rates will be brought up to this same standard when competing lines in the same territory grant similar increases.

The Illinois Central and the Chicago and Alton will be considered competing lines. This is a point strongly fought for by the men.

The schedule of wages and conditions of employment when established are to be binding upon the employes and the company and not to be changed without thirty days' notice.

The officers of the company will not discriminate in favor of or against any employe because of his brotherhood association.

The various yardmen receive a substantial increase, varying in different localities.

There is an entire revision of rules applying to all classes of train service. This was the main bone of contention and was granted in its entirety.

The following statement was given to the press immediately after the settlement:

In the final settlement of the wage controversy with the Wabash management such a spirit of fairness was displayed by Mr. Ashley, acting president, that it caused the committee of firemen and trainmen and, in fact, all parties concerned to entirely forget and forgive the past.

The settlement is entirely satisfactory to all and the committeemen will return to their former positions in the service, after being compelled to remain here many months, with only the kindliest feeling and respect for their employers, and especially for Mr. Ashley, Mr. Blodgett, Mr. Travous and Mr. McGee, with whom final settlement was made.

We have tried in handling this controversy to demonstrate by our actions to the business and labor world that members of organized labor are law-abiding and peace-loving citizens. We leave our action in this controversy and our past as organizations in the hands of the public for approval or criticism.

C. A. LEWTON,
Chairman Firemen's Joint Protective Board.
J. R. COURTNEY,
Chairman Trainmen's General Grievance Committee.
Approved: J. J. HANNAHAN,
Grand Master Brotherhood Locomotive Firemen.
W. G. LEE,
First Vice Grand Master B. of R. T.

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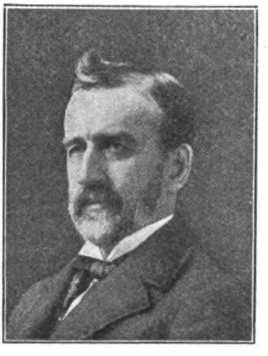
JOHN J. HANNAHAN
Grand Master B. L. F.



P. H. MORRISSEY
Grand Master B. R. T.



W. G. LEE
First Vice Grand Master B. R. T.



F. N. JUDSON
Counsel in Wabash Suit



JOHN H. MURPHY
General Counsel B. L. F.



E. J. PINNEY
General Counsel B. R. T.



W. T. IRWIN
Counsel in Wabash Suit

OFFICERS AND COUNSEL IN WABASH INJUNCTION SUIT

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The subject can not be dismissed without referring to the wise and successful manner in which the negotiations were conducted. The interference of the federal court introduced complications that made the situation novel, but those in charge were equal to the emergency, and nothing but words of commendation is heard from the public press. If the purpose in issuing the injunction was to disconcert the Brotherhoods and their officers and committees, and cause them to ignore a palpable injustice, so that they might be imprisoned, that purpose failed. The men in charge were equal to the emergency, and as able generals in great military undertakings they out-maneuvered their adversaries at every point. Messrs. Morrissey, Hannahan and Lee, and the members of the respective committees have not only earned the approval of the members of the Brotherhoods, but the commendation of the American people for themselves and for the Brotherhoods.

What could be more opportune than the following resolutions, adopted by the Firemen's Committee just previous to adjournment:

Resolved, That we, the undersigned members of the Joint Protective Board of the Brotherhood of Locomotive Firemen, in closing the record of our long struggle for improved conditions on the Wabash System, and congratulating our members on the success which has crowned our efforts, desire to place on record our grateful acknowledgment of the advice of our Grand Master, John J. Hannahan.

During the past five months of continuous struggle, in negotiations, conferences, litigations and settlement, unparalleled in the history of our Order, he has been continually by our side, always wise and sagacious in counsel, and gallant and inspiring in leadership.

The triumphant result could not have been secured without him.

He is entitled to the lasting gratitude of the members of our Brotherhood, and his name will always be held in honor.

CHAS. A. LEWTON,
Chairman.
FRED ENGLEHARDT,
Sec. and Treas.
B. W. SCHAFER.
C. J. AUGUR.
A. H. MARTIN.
H. C. NIEMEYER.

Again, we desire to assert that henceforth the welfare of the Wabash Railroad Company will be a matter of concern to all our members. Let us hope that never again will anything occur to mar the present friendly and profitable relations between that railway and its employes.

Just as the settlement is reached the news came that the daughter of President Ramsey had died in a distant land. Mr. Ramsey had hurriedly answered the call to attend her in her illness. The Magazine feels sure that it voices the sentiments of the entire membership of the Brotherhood of Locomotive Firemen when it extends to him the sincerest sympathy in this his hour of affliction.

♣ ♣ ♣

Government by Injunction.

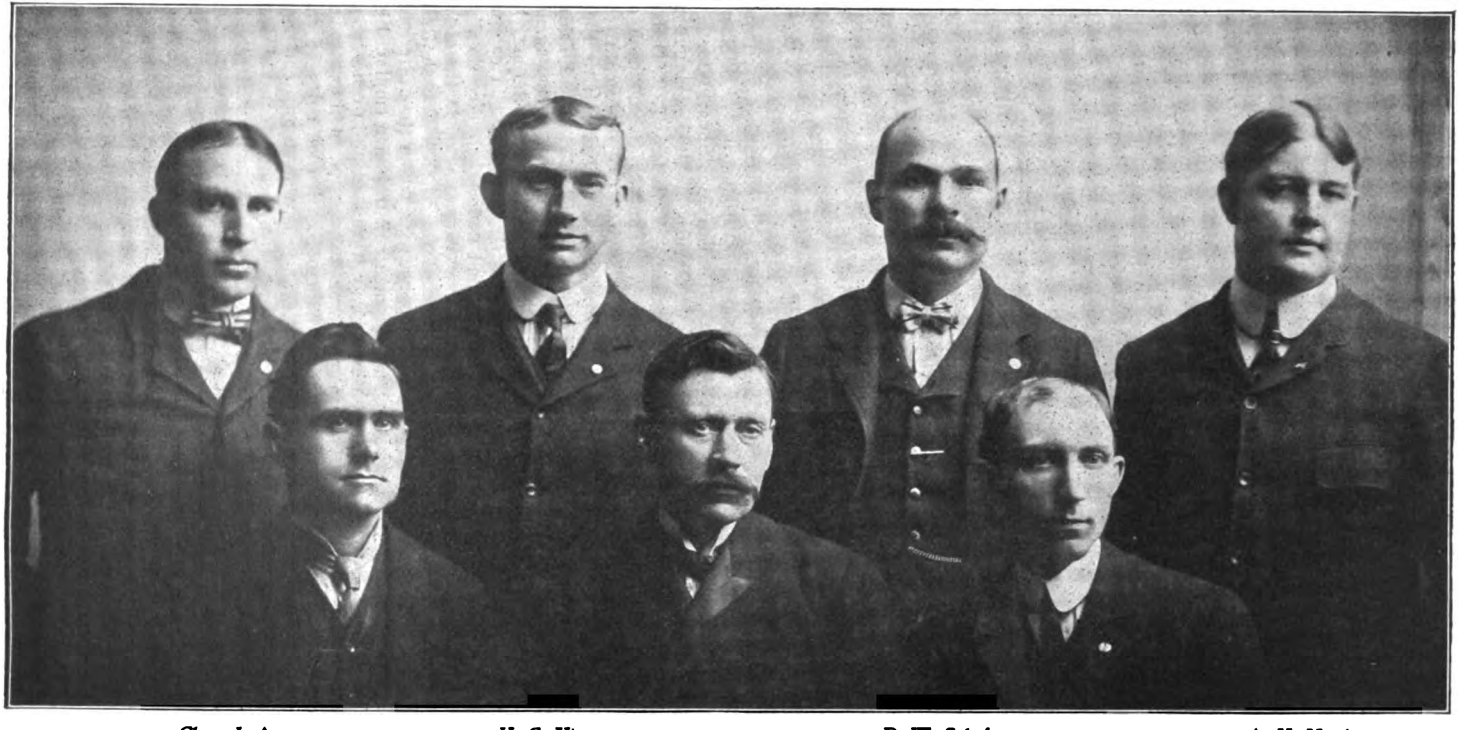
But we have not settled with the federal courts. The inglorious attempt to rob working people of their rights as American citizens, rights guaranteed by the Federal Constitution, will not be soon forgotten—and will never be forgiven. The courts are making war on union labor; they are violating the Constitution they have sworn to support in prosecuting this war. Sherman said that "war is hell"—and so the working people of America are finding this judicial war upon them. They find the courts arrayed against them just as the courts were arrayed against free labor fifty years ago. We remember that in the face of statutes and public protests the federal courts strenuously attempted to force slavery upon the free States.

The Wabash injunction is but one of many like iniquities. While members of the Brotherhoods are groaning under their oppression, in other parts of the country other working people grievously bear their burdens. Because of a murder committed at Waterbury, Conn., a murder charged to some unknown member of a union, an injunction has been granted that practically declares martial law, so far as all union men are concerned, and attaches every dollar that is the property of any union within the territory covered by the injunction. It matters not who committed the murder. Those who are attempting to defeat the strikers accuse union men of murder, therefore, every article of the Bill of Rights of the American Constitution is suspended by the vindictive judges.

There are but two methods of relief, the ballot and the bullet. The man who favors the latter is an idiot—and the labor movement is cursed with just such idiots. The following resolution was adopted by the Federated Trades Council of Milwaukee, Wis., if we may believe the press dispatches:

Resolved, That since no nation in which the people are totally disarmed can

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Chas. J. Augur
Lodge 405, Peru, Ind.

H. C. Niemeyer
Lodge 556, Ashley, Ind.

B. W. Schafer
Lodge 526, Stanberry, Mo.

A. H. Martin
Lodge 5, St. Thomas, Ontario

Chas. A. Lewton, Chairman
Lodge 54, Moberly, Mo.

J. J. Hannahan, Grand Master

Fred Englehardt, Sec. and Treas.
Lodge 535, Chicago, Ill.

JOINT PROTECTIVE BOARD OF THE BROTHERHOOD OF LOCOMOTIVE FIREMEN, WABASH RAILROAD

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in the end remain a free nation, therefore we urge all liberty loving citizens and especially union men to remember and obey Article 2 of the Constitution of the United States, which reads as follows: "The right of the people to keep and bear arms shall not be infringed."

It is just such idiocy as this that our oppressors are praying for. These resolutions were adopted because of the Wabash injunction—but remember one thing—if the American workingmen have not enough sense to protect themselves with their ballots they will not have sense enough to succeed by any revolutionary proceedings. Let us hope that the working people will make "government by injunction" the "paramount issue" of coming political campaigns, and let us hope that every man who desires future liberty for the American people will register a vow to vote for no man who is not known to be in favor of putting a stop to "government by injunction."

The Editor has carefully read the decision of Judge Adams, and while he finds that the Judge has partially receded from the ridiculous position which he had assumed, and while he takes occasion to recite some rights of labor that no one but the judges have questioned, the fact remains that Judge Adams has established a precedent that will be enlarged upon by those who expect to crush the hopes and ambitions of the working people.

If Jones robs Smith of his property, because Brown has incited him to do the act, Jones is none the less guilty of a crime.

If Jones robs Smith of his property, because Brown swears that Smith is going to injure him, Jones is none the less guilty of a crime.

If Jones robs Smith of his property, and his act arouses the people against him, and the populace rise up and denounce him for his act, so as to cause Jones to return to Smith the stolen property, Jones is none the less guilty of a crime.

If Jones robs Smith of his property, and becomes repentant, so that he returns the property to Smith, while the consequent punishment would perhaps be less severe, Jones is none the less guilty of a crime.

It is the illegal act of Jones that makes him guilty of the crime, which subsequent circumstances can only mitigate.

If a federal judge robs the working people of their constitutional rights and liberty, because an employer incites him to do the act, the judge is none the less guilty of a judicial crime.

If a federal judge robs the working people of their constitutional rights and liberty, because an employer swears that the working people are going to injure him, the judge is none the less guilty of a judicial crime.

If a federal judge robs the working people of their constitutional rights and liberty, and his act arouses the public against him, and the populace rise up and denounce him for his act, so as to cause the judge to return to the working people their liberty, the judge is none the less guilty of a judicial crime.

If a federal judge robs the working people of their constitutional rights and liberty, and becomes repentant, so that he returns to the working people their rights and liberty, while the consequent condemnation would perhaps be less severe, the judge is none the less guilty of a judicial crime.

It is the illegal act of the judge that makes him guilty of crime, which subsequent circumstances can only mitigate.

On March 3, 1903, a federal judge, one Elmer B. Adams, issued an injunction against the following named persons:

Charles A. Lewton, Fred Englehardt, B. W. Schafer, Charles J. Augur, A. H. Martin, H. C. Niemeyer, J. R. Courtney, E. C. White, F. H. Hecox, Geo. W. Bradly, Jos. Sell, F. G. Shepard, W. E. Rowe, C. H. Wilkins, M. McManus, Wm. McKay, A. E. Jordan, John J. Hannahan, P. H. Morrissey, W. G. Lee, T. R. Dodge, F. W. Arnold, Timothy Shea, "each of them individually, and as representatives of the Brotherhood of Locomotive Firemen, and Brotherhood of Railroad Trainmen, their representatives, clerks, agents and attorneys, and all others who may be aiding and abetting, or acting in concert with them, and under their direction."

The first seventeen named in the above list were employes of the Wabash Railway Company, with whom the other locomotive firemen and trainmen employed by that company were "acting in concert" in an endeavor to secure an increase of wages and modification of rules of employment. These seventeen men had communicated to their employers the fact that the locomotive firemen and trainmen employed by that road had by referendum vote decided to leave the service of the company if the demands were not granted. The injunction was addressed to every person, no matter what their avocation, who should aid, or abet, or act in concert with the persons named. The fact that the names of certain officers of the firemen's and trainmen's associations were

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mentioned is immaterial, for without mentioning the names of these officers they would have been included among those enjoined. If an editor or a reporter of a newspaper had aided, had abetted, or had acted in concert with the seventeen employes named they would have been included among the persons enjoined. There is hardly any limitations to the number or character of persons affected.

Now, that we have seen *who* were enjoined, let us see what they were enjoined from doing:

Judge Adams ordered them *"absolutely to desist and refrain from in any way or manner ordering, coercing, persuading, inducing, or otherwise causing, directly or indirectly, the employes of the Wabash Railroad Company*, complainant, engaged in or about the operation of its trains within the United States, as brakemen, switchmen, or locomotive firemen, *to strike or quit the service of said company."*

If any employe of the Wabash, or any friend of such employe, or any newspaper, or any other imaginable person had "acted in concert" or "aided," or "abetted," by "persuading, inducing, or otherwise causing, directly or indirectly, the employes of the Wabash Railroad Company" to "quit the service of said company," that person would have violated the injunction and would have been imprisoned by Judge Adams, *without the privilege of a trial by jury.*

Among the provisions of the Constitution of the United States are the following:

Congress shall make no law abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble.

No person shall * * * be deprived of life, liberty or property without due process of law.* * *

No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States.

The trial for crimes, except in case of impeachment, shall be by jury.

In all criminal prosecutions the accused shall enjoy the right to a speedy and public trial, by an impartial jury. * * *

Neither shall slavery or involuntary servitude, except as punishment for crime whereof the party shall have been duly convicted, exist within the United States, or any place subject to their jurisdiction.

This Constitution and the laws of the United States which shall be made in pursuance thereof * * * shall be the supreme law of the land; and the judges in every State shall be bound thereby, anything in the constitution or laws of any State to the contrary notwithstanding.

In this now notorious Wabash injunction Judge Adams deliberately robbed the working people of the rights guaranteed them by the Constitution of the United States which he had sworn to observe.

His judicial edict did "abridge the freedom of speech" and "of the press." He did "deprive" the employes of their "liberty" to "quit the service" of their masters. He did "enforce" a "law" which did "abridge the privileges" "of citizens of the United States." He would have denied these working people "the right to a speedy and public trial, by an impartial jury" had they violated his edict. His injunction did enforce "involutary servitude" upon the employes of the Wabash Railway Company. He as a "judge" ignored the Constitution of the United States and was not "bound thereby."

Not since that similar usurpation of power by Judge Jenkins has there been such a protest from the people and the press. Judge Adams was denounced from one end of the land to the other. His act was nothing short of a judicial crime. He found himself assailed from all sides. Eminent business men, jurists, and politicians expressed surprise and alarm at the act of Judge Adams. His only friends were those who, for their own private gain, hoped to crush the working people and their unions.

Is it strange, then, that Judge Adams partially receded from his absurd position? But how far has he receded?

He has dissolved the injunction, after enforcing "involuntary servitude" upon the employes of the Wabash for a period of four weeks.

In his decision which sets aside his former edict he recites his reasons for granting that obnoxious and notorious injunction, which are certain affidavits of the officials of the Wabash Railroad Company. In defense of his usurpation of power in depriving working people of their liberty, and in suppressing the free speech and the free press assured and protected by the Constitution of the United States Judge Adams says:

"Such an order on the showing made by the bill of complaint was not only warranted, but imperatively required by well recognized principles of equitable jurisprudence, as well as by controlling satisfactory and abundant authority in cases of similar character in this country and in England."

This assertion of Judge Adams is a bold proclamation that "in cases of similar character" he will do the same thing

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again. This injunction will perhaps be a precedent upon which other judges will enlarge. Judge Adams, although dissolving his injunction, proclaims that he, or any other judge, would "not only be warranted, but imperatively required" to issue another similar injunction whenever the employers file similar "showing."

be the first to discover this "authority." Nothing like the Wabash injunction was ever perpetrated upon the American people before.

In desperate efforts to excuse his judicial act he cites recent decisions of *English* courts! Great Scott! What have the courts, laws and decisions of England,



(From Boyce's Weekly)

From this all working people may understand that unless they elect men to the Senate and the House of Representatives, of the United States Congress, who will enact legislation curtailing "government by injunction" they may expect a repetition of the Wabash injunction whenever there is a "case of similar character." Judge Adams says that he was authorized to rob men of their liberty, to suppress free speech and a free press, by "principles of equitable jurisprudence." Then why was it left to Judge Adams to

Russia or Afghanstan to do with American citizens? Verily, Judge Adams has forgotten that between the Governments of those countries and the American people there intervenes the Constitution of the United States. If a Russian court enforces "involuntary servitude;" or if an English judge suppress "freedom of speech and of the public press," does Judge Adams regulate his judicial procedure by such foreign laws and usages, and in violation of the American Constitution? No wonder that the venerable

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Judge Tuley begs of his associates to call a halt in their un-American aggressions upon the rights of the common people—people whose votes may some day do away with the present form of judiciary.

Judge Adams says that he granted the injunction against the employes upon the request of the employers:

"Without notice to the defendants, because it appeared from the averments of the bill that there was immediate danger of irreparable injury, unless it was so made."

Regardless of the fact that Judge Adams finally dissolves his injunction he gave the employer the benefit of it for a period of four weeks!

Judge Adams cites many previous decisions of other judges concerning the rights of employes to form unions and to "leave the service" of their employers, *all of which are at variance with the Wabash injunction*, and says:

"I might continue at length in the citation of cases stating or illustrating the foregoing proposition, but enough has been said to clearly indicate the general rule, which may be briefly summarized as follows: An employe has an unquestionable right to place a price and impose conditions upon his labor at the outset of his employment, or unless restrained by contract obligation, upon the continuance of his labor at any time thereafter; and if the terms and conditions are not complied with by the employer, he has a clear right either not to engage or having engaged in his service to cease from work. What one may do all may do."

Judge Adams should have remembered this "general rule" and should not have issued his injunction which effectively prevented employes "quitting the service of the said Wabash Railroad Company."

Judge Adams *now* says of employes:

"They may seek and obtain counsel and advice concerning their rights, duties and obligations in relation to their employer; and persons interested in their welfare may advise, aid and assist them in securing such terms and condition of service as will best subserve their interests; and what they may lawfully do singly, or together, they may organize and combine to accomplish."

Then why did Judge Adams deny them these very rights, the rights he now says they possess? If they possess that right why did he issue an injunction forbidding them? His injunction forbade anyone "aiding" the Wabash employes, and now he says that "any person interested in their welfare may advise, aid and assist them." Was there ever such a confession of sin?

Judge Adams says:

"They may by peaceable and lawful combination and concert of action, be able to so control the supply of labor as to compel the employer to come to their terms."

And yet Judge Adams directed his injunction especially at this "concert of action," suspending this right for a period of four weeks.

The Judge says:

"It now becomes my serious and anxious duty to reach a just and righteous conclusion upon the issues already stated with absolute fidelity to the truth as disclosed by the proof before me."

It was Juvenal who said:

"Man, wretched man, whene'er he stoops to sin,
Feels with the act, a strong remorse within."

But what of this "righteous conclusion?"

"The proof, in my opinion, fails to substantiate the charge made in the bill to the effect, that the complainant's employes are entirely satisfied with their wages and conditions of service."

Suppose the proof had not refuted this charge; is it to be understood that the injunction would have been made perpetual, and the right of free speech forever denied to all of those against whom the injunction was directed? If employes have the right to "cease from work" or to "seek and obtain counsel and advice," etc., how does the charge that employes "are entirely satisfied," even though proved, affect those rights?

As reasons for dissolving his injunction Judge Adams itemizes as follows:

"At the time in question, there was a very general demand for an increase of wages and change in rules and conditions of service by employes of railroads operated in this region."

Suppose the defendants had failed to prove that "there was a very general demand for an increase of wages and a change in general rules and conditions of service by employes," etc., would free speech have been forever enjoined by Judge Adams?

The Judge continues as reasons for dissolving the injunction:

"That such demands had come to the attention of complainant's chief executive officer, and had been recognized by him."

Suppose that the "complainant's chief executive officer" had not recognized such demands; would that have affected the dissolving of the injunction? The Judge then proceeds to explain that "the committees and officers of the Brotherhoods" were only exercising the functions of their offices and that they had "secured written authorization from a large number of members of their orders to repre-

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sent them in securing the concessions requested."

Judge Adams says:

"It is not for me to pass or express any opinion upon the reasonableness of the demands made by or in behalf of the employes."

Taking this statement, which is the plain truth, into consideration, can we not ask why Judge Adams undertook "to pass or express any opinion" about any part of this controversy? Are we to understand that it is a part of the business of a federal judge to interfere in all or any disputes that may arise between employes and their masters?

Again Judge Adams says in dissolving the injunction:

"It is the privilege and right of employes to impose any conditions upon their service deemed wise or prudent by them, and to demand such compensation therefor as they deem reasonable, and that on failure to secure the concessions insisted upon by them, to retire from the service of the employer."

Then why did Judge Adams enjoin them from the benefits of this privilege for a period of four weeks? If the employes had not had the support of wealthy organizations, that procured the best legal talent obtainable to defend them in court, we must believe that Judge Adams would have perpetually enjoined them from these privileges to which he now says they are entitled.

Again Judge Adams says in dissolving the injunction:

"It is shown by the proof that no strikes can lawfully occur by employes who are members of either of the Brotherhoods in question, without the sanction of the Grand Master and General Grievance Committee of the Order. To enjoin them, therefore, from ordering or otherwise causing a strike, is in substance and effect an injunction against resort to a strike by employes who may be members of the orders for the redress of asserted grievances. This, under well settled law, can not be done."

And yet Judge Adams did enjoin them from these very things that he now says they are entitled to do by law. He says of his injunction that "it can not be done," *and yet he has done that very thing.* Was there ever such inconsistency?

The Judge says:

"It is contended that the threatened strike was resorted to by the defendants, not in good faith to redress grievances, or secure desired concessions, but as a result of a combination and conspiracy to accomplish the ulterior purpose of securing recognition of their Unions or Brotherhoods, as authoritative agents or representatives of its members, in all their dealings with the company, and also to unionize the roads of the company," etc.

According to this statement of the Judge we can understand him only to mean that if the dispute between the employes and the company had been "securing recognition" for the labor unions that it would have been a "conspiracy," which he would have perpetually enjoined. If he does not mean this, what does he mean?

The Judge agrees that the defendants "did honestly and fairly secure the two-thirds vote of the Brotherhood employes



TRYING TO FRIGHTEN ORGANIZED LABOR
(From Boyce's Weekly.)

in favor of the strike," and that they did not "secure the same by coercion, misrepresentation and fraud."

Suppose that defendants do not secure two-thirds majority in favor of a strike, do we understand that the Judge will prohibit strikes?

The Judge says:

"The right of labor to organize for lawful purposes, and by organic agreement to subject the individual members to rules, regulations and conduct prescribed by the majority, is no longer an open question in the jurisprudence in this country."

This is presumed to mean that the majority rule in labor organizations is now

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made obligatory, and if a strike is otherwise "ordered" that it will be a subject for an injunction.

The Judge also says:

"The question of the right of the employe or body of employes to appear by agent or committee before their employer for the assertion of rights or redress of wrongs, being a matter more of business policy than anything else, and could not in, and of itself, be the basis of a charge of malicious conspiracy."

Yet this is exactly what was charged by the employer and against which Judge Adams issued his injunction, and for which he suspended the constitutional rights and liberties of the employes for a period of four weeks, which period would, perhaps, have been extended indefinitely had not the employes been supported and defended by wealthy labor organizations who fought the employers and Judge Adams on their own ground and with their own weapons. It was against these "agents or committee" which Judge Adams issued his injunction, and also against "all others" who might "act in concert with them,' and he doubtlessly would have sent them to prison if they had "aided" the employes.

The Judge then says:

"After considering all the evidence bearing upon the issues now under discussion and carefully weighing the foregoing, and all other arguments of counsel, I am not able to find the existence of the conspiracy to secure recognition as charged."

It is evident that this "recognition" question sticks in the Judge's craw. He is out gunning for organizations that demand recognition, and woe be to the employes in his jurisdiction who enter into such a "conspiracy!" The Judge finds that the defendants did not misrepresent facts in the circular which they issued "to their fellow members," but suppose the Judge had preferred to believe the many sworn statements of the employers instead of the statements of the employes, would he have made his injunction perpetual?

The Judge says that it is "fully confirmed" that in their "formal statements of demands" that "not a word is found in that ultimatum about recognition of the Brotherhoods or committees or unionizing the roads."

Here is the same question again. If Judge Adams' decision means anything it means that he would not have dissolved his injunction if the question of "recognition of the Brotherhoods or committees" had been one of the issues of the contemplated strike. He even goes further, and says:

"The gravamen of the conspiracy coming within the jurisdiction of his court, charged against the defendants is: That they have maliciously conspired, combined and confederated to accomplish the object of securing their own recognition as plenary agents and representatives of complainant's employes, by preventing complainant from performing its duties, and preventing lines of railroads connecting with complainant, and their employes from performing their duties as prescribed by Sections 3 and 10 of the Interstate Commerce Act just quoted."

The word "gravamen" is defined by the Standard Dictionary as, "The part of a charge that bears most heavily against the person accused; burden of complaint; the special grievance or cause of action in a suit of law," and Judge Adams says that the supposed efforts of the Brotherhood officials and committees to secure "recognition" was the "gravamen" of the injunction proceedings.

The Judge then cites the "facts" of the case, all of which seem to be at variance with the sworn statements of the officials and their detectives. According to Judge Adams perjury by the employers caused him to issue the injunction. Is not this deception practiced upon the Judge a "contempt of court," in that it led the Judge to be held in contempt by an entire nation?

The Judge again reverts to the "recognition" question by referring to the affidavits of detectives, that "Hannahan and Lee" were heard "talking together" in regard "to compelling the Wabash Railroad to recognize their organization, and to deal with them as representatives of the said organizations in matters affecting the employes of said railroad company, by forcing a strike and tying up and crippling its business and property," and that "Hannahan and Lee" said that if they were not recognized that the business of the Wabash road would be tied up and that connecting railroads would not be allowed to interchange with them.

The Judge does not believe this affidavit, but says:

"It can not but be observed that the language attributed to Hannahan and Lee concerning their arrangements to boycott the complainant's road by preventing the interchange of traffic, etc., is sufficient of itself to convict them of a conspiracy to violate the laws of the United States."

As reasons for dissolving the injunction Judge Adams intimates he does not believe the affidavits of the employers, and further says:

"It has already been pointed out, and in my opinion satisfactorily demonstrated that if any such purpose had ever existed on the part of the defendants, or the

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Brotherhoods they represented, it had undoubtedly been abandoned before March 2d. The ultimatum asked for and delivered to the president of the railroad company on that day, contained no such requirement. Nothing was then insisted upon, but increase of wages and certain changes in working rules, and I may here properly remark, that the proof shows that the only substantial matter of difference between complainant and its employes, at least after February 18, 1903, was whether the wages and rules already established, or conceded to be easily agreed upon for service west of the Mississippi River, should be applicable to service on lines east of that river. Such being the facts and circumstances of the case, the question of recognition of the Brotherhoods and unionizing the roads had been on and prior to March 2d eliminated from consideration. Is it probable that the controlling spirits of the movement would have made, not only the self-condemnatory, but the unquestionably false statements, attributed to them by the affidavits in question? I think not."

In conclusion Judge Adams says:

"It results that this court should not interfere with the exercise of the right on the part of complainant's employes, who are members of the Brotherhoods in question, of quitting the service of complainant in a body, by restraining the defendants, who are officers of the Brotherhoods, from exercising the functions of their office prerequisite thereto, and that, at the present time, there is no reason shown for an injunction restraining the defendants from interfering with interstate commerce, or the mail service of the United States."

A reading of the foregoing makes it conclusive that: First, the affidavits of the employer which led to the issuing of the injunction were false; second, that Judge Adams made a mistake in issuing the injunction; third, that if the employes had not been befriended by powerful and wealthy labor organizations that were able to procure eminent counsel that the injunction would not have been dissolved; fourth, that the advice and wise actions of the executive officers and committees of the Brotherhoods perhaps saved the employes from a perpetual injunction; fifth, that Judge Adams agrees that employes of a railway company have a right to unite in a labor organization and to employ such agents, committees, or officials to represent them as they desire; sixth, that demands made by members of a labor organization are to be restricted to wages and rules of employment; seventh, that the members of a labor organization will be enjoined from demanding "recognition" of that organization.

While a majority of the newspapers pronounce the dissolving of the injunction as a "victory of organized labor," the "victory" may well be compared to the successful effort of a merchant ship to beat off a pirate vessel.

The alarming feature of this judicial innovation is that the public, although condemning the outrage, now that the employes have regained at least some of their lost liberties, seem to be glad that the injunction was granted. The following, from the Springfield (Mass.) Union, shows the trend of public opinion:

"The injunction restraining the organization of railroad men from ordering a strike on the Wabash road, which has been dissolved by Judge Adams, may have been wrong, but it served a good purpose. It gave both the railroad and its employes an opportunity to think the situation over, with the probable result that there will be no strike."

Pope, in his "Essay on Man," says truthfully:

"Vice is a monster of so frightful mien
As to be hated needs but to be seen;
Yet seen too oft, familiar with her face,
We first endure, then pity, then embrace."

The following is the opinion of the Chicago Chronicle of the real effect of the decision which dissolved the injunction:

Officials of organized labor are, perhaps, too much elated over the action of Judge Adams in setting aside his restraining order in the Wabash case. That action was favorable to the men in that particular case, but it involves no retraction of the assertion of extraordinary power in the court to go into men's minds to find wrong or criminal intent and to order them not to carry such intent into execution.

In fact, the opinion handed down by Judge Adams asserts not only by implication but expressly the right of a court to go into these matters of intent and to order men not to carry such supposed intent into execution.

The Judge states that the restraining order was issued upon complaint that the defendants had entered into an unlawful and malicious conspiracy to attain certain ends by falsely representing that the employes of the road who were members of the Brotherhoods were dissatisfied with their wages and conditions of service, when they were entirely satisfied, and that these defendants were about to exercise their powers as officers of the Brotherhoods to force an undesired strike and otherwise interfere unlawfully with interstate traffic and the mail service.

The Judge then proceeds to say that on the hearing to determine whether the temporary injunction should be made permanent the charges made in the original complaint as to the intentions of brotherhood officials not connected with Wabash service and as to the unwillingness of the Wabash men to strike were not sustained. For that reason the injunction was dissolved.

This means that the Judge assumed throughout that his power to go into

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men's motives and intentions in advance of their actions was undeniable. The only question was whether the allegations made in the complaint as to the intentions of the men and as to what was going on in their minds were true. The right of the court to issue a temporary restraining order without knowing whether the complaints were true—upon purely ex parte affidavits—was not disclaimed.

Indeed, that right was expressly asserted. Judge Adams is reported as saying that "the provisional restraining order was made without notice to the defendants * * * and was imperatively demanded by the general principles of equity jurisprudence recognized and enforced in many similar cases in the United States and England."

This is a most unequivocal assertion of the power of the court to issue a preliminary restraining order against a strike, without notice to the defendants, upon mere ex parte affidavits filed by complainants, alleging no unlawful act, but only a purpose to strike and to violate laws in so doing.

The decision does not recede one inch from the most advanced position of the courts in the matter of injunctions to restrain strikes. On the contrary, the opinion of the court may be quoted by other judges in defense of the most extreme exercise of the power of injunction to restrain strikes or to restrain anything else without giving the persons restrained any notice or opportunity to be heard and upon ex parte affidavits which would hardly warrant an arrest for petit larceny.

The labor men have gained nothing but a decision that in this particular case the ex parte affidavits were not sustained upon the hearing. There is no surrender of any part of the judicial power claimed and exercised when the temporary injunction was issued.



A HEROIC DEFENSE

(With Apologies to "Davy Crockett")

(From Boyce's Weekly.)

The Cedar Rapids (Ia.) Gazette says:

Now that the anti-strike injunction has been dissolved the federal judge who issued an order that he knew to be illegal, for the benefit of the Wabash Railroad, should be summarily removed from office, and the laboring men of the country should organize a movement to compel his degradation. A judge who does the thing he knows to be illegal is unfit for the position and the country would be well served by his removal. Another judge might do an illegal thing in another direction. There should be some limit to the injunction habit.

The Railway Age (Chicago, Ill.) says:

The temporary restraining order issued by the court undoubtedly disposed the

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employes to be more careful and reasonable in their demands, and its dissolution did not withdraw its moral effect.

* * * * * *

It is to be noted that in dissolving the temporary injunction against the threatened strike of Wabash trainmen, the federal court so orders because he does not find support for the company's allegation of a conspiracy by the officials of the Brotherhoods to precipitate a strike undesired by the men. But the court cites many authorities in the United States and England sustaining the issuing of provisional restraining orders in similar cases, and leaves the plain inference that the injunction would have been made permanent had the court been satisfied of a conspiracy "to interfere with the interstate commerce or the mail service of the United States."

The Pittsburg (Pa.) Gazette says:

But despite this outcome, the preliminary injunction has established a new precedent and the very decision dissolving it sustains a principle never before affirmed in court, viz.: That officers of a union have no right to order a strike when the workmen have no grievances in relation to wages or conditions of service. The importance of this is in its application. "Sympathy" strikes have frequently been ordered under just such circumstances. For example, members of a union strike against unsatisfactory conditions in Chicago. With fancied intent to assist the strikers there a strike is ordered in the same line of business in Pittsburg, though conditions here are wholly satisfactory to the employes. Judge Adams' opinion practically avers that such an order would be illegal and contrary to good public policy. The reasoning is good, too.

The Lincoln (Neb.) Commoner says:

While the decision is a victory for the workingmen, Judge Adams undertakes to justify the temporary restraining order. That order should not have been issued even if the facts alleged were true; and we need go no further than the statement of the conclusions reached by Judge Adams himself to justify this claim. If workingmen have an unquestioned right to organize, if they have a right to demand higher wages and to quit work if their demand be not complied with—and Judge Adams says they have these privileges—then the court was not justified in issuing the restraining order forbidding these men to quit work even accepting the statements made in the railroad company's petition as being entirely correct. * * *

The objection to government by injunction is not merely against the evidence on which the writ is based; it is against the writ itself, as it is applied in enabling powerful men to interfere with the plain rights of other men and as it represents that extraordinary power assumed by a judge which power has, properly, no place in our system of government.

The very men who have been quick to resort to the writ of injunction against workingmen would become very indignant if the workingmen could summon sufficient influence to persuade a judge to issue an injunction in their behalf denying to the employer the exercise of his unquestioned rights.

One of the most striking utterances with respect to the temporary restraining order issued by Judge Adams was made by Edward M. Shepard recently in a speech delivered in Chicago. Mr. Shepard asked: "Is it anything less than calamitous that in the armory of law weapons should be found to restrain that kind of freedom, when thus far the armory of law has been ransacked in vain for weapons equal to the prevention of combinations expressly forbidden by statute?"

Men who have been ready to resort to the injunction in order to deprive laboring men of their plain rights would not only be indignant if they were made the victims of similar injunctions, but they never have been slow in giving expression to their indignation when it has been suggested that the armory of law be ransacked for weapons in order to protect the people and in the effort to require powerful and influential men to abandon their impositions upon the weak and the helpless.

The Coast Seamen's Journal (San Francisco, Cal.) says:

The dissolution of the injunction signalizes nothing particular; on the contrary, the very terms of the dissolution imply of necessity the right of the courts to enjoin the doing of certain things in themselves right and lawful. Judge Adams refused to continue the injunction against the doing of these things, not because he recognized the right to do them, but because he found that the trainmen and firemen had not actually "conspired" to do them. That is all there is to the so-called "sweeping victory for organized labor."

The Elizabeth (N. J.) Journal says:

The most important feature of the whole case is that which demonstrates the restraining power of the court. The injunction was issued; the men obeyed it. They dared not do otherwise. But in the last analysis they won, because there is no power vested in any court which will prevent a man from declining to work when the conditions do not suit him, and when it is his privilege to quit.

The Kansas City (Mo.) Journal says:

Injunctions are perfectly proper, equitable proceedings under our laws to prevent irreparable injuries, which can not be prevented by any other process. It is possible that the remedy may be abused, and, in fact, perhaps some judges have not in the past shown the best judgment in applying it, since judges are liable to make mistakes; but injunctions may be necessary at any time, not only to protect railroads and other property, but to safeguard the interests of the innocent public.

It is becoming clearer every day in the public mind that in these labor and capi-

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tal controversies there is a third party that has some indubitable rights, and that workmen and employers alike have some responsibilities of which they can not, by any process of reasoning, divest themselves. This is especially true of public and semi-public corporations and their employes. It is inconceivable, for instance, that the law will not step in and say to railroad trainmen that they shall not abandon, suddenly and without any warning, a passenger train in a great snowstorm, because they happen to have even a just grievance against the company. When the workers in the activities which serve the public accept service, they do so with the knowledge that they have responsibilities to the public. So the owners of coal mines will be chary in the future of declaring that they are carrying on private business, which they may conduct according to their own whim while the public freezes to death. If the existing laws will not fit such cases as these, the law will have to be changed. The people have passed the point where they will supinely suffer while the two parties to the controversy fight out their disputes, utterly regardless of the suffering and inconvenience that result.

The Bloomington (Ill.) Pantagraph says:

There was no case made out against the union Brotherhoods, though the court proceeded on the assumption throughout that it had the power to go into the motives and intentions of the men in advance of their actions. What therefore was at first regarded as the remarkable order of Judge Adams in the premises is in no way discredited by the later decision. Indeed, a similar order might issue again where the same facts as to the forming of a conspiracy were alleged, and the court might again determine after a hearing whether the allegations were sustained and whether the order should be made permanent. The labor leaders have won out on a hearing of the facts in this particular case, but the principle involved in the original order is in no way affected.

The New York Times says:

There is only an apparent, not a real, contradiction between the order of Judge Adams granting a temporary injunction to restrain the issue of a strike order on the Wabash Railroad System and his action in dissolving the injunction on Wednesday.

The Denison (Texas) Herald says:

It is a little late in the day to dissolve the injunction, since the employes have been deprived of all the rights they had at the time when the execution of such rights would have been of value and importance to them.

The Chicago (Ill.) Inter-Ocean says:

The officers and members of the unions are to be congratulated upon their vindication by the court. Yet all thinking men must regret that Judge Adams did not see, when the complaint of the railway officials was presented to him, that charges so sweeping against reputable men—the equals as citizens of the complainants—might well be false.

If Judge Adams had only thought of that he might have been saved the embarrassment of having issued an injunction which practically forbade every human being in the United States not only from "ordering or coercing," but also from "persuading, advising, inducing, or otherwise influencing" the Wabash Railway employes from exercising their inalienable right to leave employments with which they were dissatisfied.

If Judge Adams had only remembered that, because one man possesses or represents large property interests, that is no safe ground for assuming that he is more likely to be telling the truth than another equally reputable man who possesses or represents nothing but the labor of the hands, he would have saved his country the embarrassment of an injunction bringing its laws and courts into contempt because so phrased that it can be construed as nothing less than a declaration that free speech is a crime.

Judge Adams is to be congratulated upon his manly admission that he was deceived by the officials and counsel of the Wabash Railway. He is even to be commended for his patience in refraining from an open rebuke and punishment of those persons for deceiving and trifling with the court. And it is to be hoped that his painful experience—for painful it must have been to a just judge—will warn other judges against unseemly haste in granting injunctions in labor disputes.

The San Francisco (Cal.) Examiner says:

The federal judge at St. Louis has vacated the restraining order directed to the Brotherhoods of trainmen and firemen, and the way is now open to the Wabash men to proceed with their strike if they are unable to reach an agreement with the railroad officials. The complaint of the officials in the suit was of itself sufficient evidence that there was no merit in the railroad's case, for everybody knows that railroad men do not now attempt to hinder the passage of the United States mails except by refusing to run the trains, which they have the right to do, and that they do not engage in anything which the law would call a conspiracy to interfere with interstate commerce. Nevertheless, on the oath of responsible persons that such things were threatened, the Judge was doubtless bound to issue the order, to be enforced until the men could be heard. The utter failure to sustain by evidence the grave charges of the complaint might well have subjected the complaining officials to the severe rebuke of the court.

Government by injunction is a very poor method of government. It is not "government" when a court intervenes by injunction to prevent threatened unlawful acts of a few individuals. The forces antagonized in such cases are not strong enough to endanger the stability of society, nor does public passion arise to swerve the hand of justice. But when the injunction is invoked to restrain a

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large class of the community it arouses passion and subjects the judicial branch of the government to an unreasonable strain. That such respect is universally shown to the orders of the courts speaks well for the good American citizenship of our workingmen, but there are in some sections concentrated great bodies of aliens who care no more for a court than for a mayor or governor, and some time the practice will again lead to trouble. The right to strike is perfectly well established in America. Even if, as alleged by the Wabash officials, the demand for higher wages on the part of the men was inspired by agitators not in the employ of the company, it is no crime for one to tell even a stranger that his employer ought to pay him more money, nor will any court ever again hold that it is an "unlawful conspiracy" for men to unite in demanding higher wages, with notice that all will quit work if the demand is not granted. Doubtless, men are sometimes incited to unreasonable action by professional agitators, but the proper weapon with which to deal with such men is the force of public opinion. Injunction is the worst way of all.

The Railroad Gazette says:

Judge Adams points out that the injunction was intended to give time for investigation of the complaints made before precipitate action in the form of a strike should be taken. It does not appear, however, that any new information has been brought out which will be of service in settling the difficulty. On the other hand, the confusion in the definition of the term "strike" as distinguished from "conspiracy" has been increased. The logical conclusion to be drawn from the removal of the injunction seems to be that a strike is a conspiracy if the unions are not prepared to swear to the contrary; otherwise it is no conspiracy.

The Iowa Unionist (Des Moines) says:

Had any of the members of these organizations violated the restraining order issued upon false affidavits, their punishment would have been fine or imprisonment, or perhaps both. It would have been a glorious opportunity to designate them as hoodlums, law-breakers, the scum of the earth and other pet names. But who has seen any abuse on either the part of the judiciary or the press against the man who had no hesitation in false swearing, and doing it knowingly in order to crush out the labor union. It is again the same old story, the attempt to crush out all the efforts of the union before a trial can be had upon the facts. Since the dissolution of the order the Wabash Company and its employes have all been satisfactorily adjusted. It just so happened that the organizations attacked by false affidavits, and the present rule of injunction, were wealthy enough to bring the case to a trial costing some thousands of dollars. Few organizations are as yet financially able to meet such burdens, and the result is either the complete subjection of their rights, or else violence, which in the end means the same thing. The hope of the falsifiers is that their affidavits will never be brought into trial, as well as the knowledge that even if it comes to a trial their methods will never be called to account; with them it is a cinch that the next judge approached will in all likelihood pretend equal gullibility, and if by chance the same one be struck he will be more vigorous than before in order to justify his former position. It is beyond comprehension why the judiciary of a democratic government should continue to construe laws in accord with the holdings of the judiciary of an absolute tyrannical government of 500 years ago, and in the interests now as then of the wealthy classes who then considered and held the laborer to be a brute and a slave and now deep down in their hearts have no more kindly feelings for him. With the injunction the workingman has no quarrel, but with the abuses of its use the quarrel will continue until a better, more equitable interpretation is placed upon this much abused power. The knowledge of its deadly power to distress the laborer in his rights and demands is the sole object of its abuse. This will continue until a line of demarcation is set that will not permit violation of the true equities of law by either employer or employe.

The New York People (Socialist) says:

The working class is to be made to believe that it "won a glorious victory" by the dissolution of the injunction—a dissolution after the injunction had done its work to perfection, to as much perfection as its predecessors which were not dissolved. * * *

The "Wabash Injunction" marks a new era. Watch it work!

The Sioux City (Ia.) Union Advocate says:

The order was issued by him upon the statement of the railway officials and the decision that he handed down overruling himself is a complete backdown for the judge. The arbitrary position taken by him has been receded from, and, while in a few words he decides that the injunction shall be dissolved, he reads a lengthy document in defense of his position and attempts to excuse himself upon the theory that he was protecting interstate commerce. Public sentiment has been freely expressed since the granting of the order and there is no question but this influence of public opinion had something to do with the final disposition of the case. * * *

The presiding judge had no more right to restrain the employes, who threatened to strike, from interfering than he did to restrain the railroad who refused to confer with the men. * * *

It is some credit to Judge Adams that he had the moral courage to recede from a position that must seem to him, as to others, repugnant to the principles of justice and liberty. It would have been more honor to him to have stood out upon the broad principle that the judiciary is

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not an instrument to deprive men of their rights and liberties, but to protect them. Judge Adams gathered strength from the expression of the public which enabled him to act in accordance with law and equity. He does not need the defense that some of the papers are offering in his behalf. If he made an honest mistake and when he discovered it corrected it, he should be given credit of being honest, and honesty needs no defense. On the other hand, if he was controlled by the corporate interests and had in mind to do their bidding, right or wrong, there is no defense that can be made. The public would judge him according to their particular views. There can be no excuse offered that will apply to all sides of the question. Judge Adams made a decision, issued a restraining order and cut off certain rights of a large number of citizens for a period of thirty days, and then reversed himself. As far as he is concerned the incident is closed and he needs no defense.

The San Francisco (Cal.) Labor Clarion says:

The temporary injunction issued by Judge Adams was one of the most sweeping orders of the kind that ever emanated from a court, and attracted universal attention and met with general condemnation. While the decision just handed down is in accord with justice and will be generally approved the fact remains that the issuing of the temporary injunction was a gross abuse of judicial power, and will have the effect of hastening the advent of the day when Congress will finally abolish "government by injunction" in the federal courts.

The St. Louis (Mo.) Labor Compendium says:

Judge Adams has evidently heard the murmurs that arose from all parts of the country and may have read some of the caustic editorials criticising his issuance of the temporary injunction. Public sentiment, so readily expressed, was too strong for him to battle against even though he is an appointee of Cleveland.

* * *

What Others Say About the Injunction.

The World Today.

An extraordinary injunction was issued March 3d by Judge Adams of the United States District Court, sitting in St. Louis, by which the officers of the Brotherhood of Railway Trainmen and the Brotherhood of Railway Firemen, together with a committee of Wabash Railway employes, were restrained from ordering a strike among workmen employed by that railway. * * * The basis of the court's action was, of course, a charge of conspiracy due to the preparations made to stop all trains on the company's lines and thus prevent it from carrying out its contracts with shippers and with the United States government, for transporting the mails. While the injunction did not prevent the trainmen and firemen from quitting work the fact remains that it did prevent them from quitting in the manner preferred by them. If the injunction stood presumably it would be necessary for the court to hold that certain obligations are taken on by workmen when they enter the employ of any person, company or firm whereby they are not at liberty to quit in a body if that action would seriously injure their employer or the public. Yet no judge has ever discovered that a factory owner does not have the right to close down at any time and throw his working force out of employment without regard for the injurious effects. If the courts are to extend the injunction to the length of forbidding trades unionists to strike in the manner which they have provided for carrying out such action until after a judicial investigation, of necessity they must set themselves up as arbitration tribunals, preventing strikes when the workmen's demands are unjust and refusing to do so if the demands are just. The outcome of the injunction granted by Judge Adams should be to define more clearly the rights of trades unions in inaugurating strikes.

In modifying the celebrated injunction granted by Judge Jenkins in 1893 forbidding a strike among the employes of the Northern Pacific Railway, the United States Supreme Court asserted that a workman had the same right to quit his work that an employer had to discharge him. In the Wabash Railway case, however, certain men are restrained from ordering other men to quit work. Still, those other men had voted the power of calling them out into the hands of the officers of their unions whom the court enjoined from using that delegated power. The nearest parallel to this injunction seems to lie in the arbitration proceedings under the New Zealand law. There, if trouble arises between employer and workmen, either side to the controversy can compel suspension of action by the other side by applying to the arbitration tribunal. From that time forward work must proceed as usual until judgment is pronounced after an examination into the conditions surrounding the dispute. We are not ready in this country to accept the principle of compulsory arbitration. If, however, the courts are to discover that to organize a strike is an act of conspiracy, they will have to provide some legal substitute for the stern warfare of the labor strike. Assuredly it is time for the courts of this country to determine or to have determined for them by act of Congress what are the limitations of the injunction. If the Wabash Railway can stop a strike by an order of court, the other railways henceforth will find it cheaper to apply for injunctions than to raise wages, as many of them have done. It is estimated that the increases in the pay of railway employes in this country during the last two years amount to the enormous total of $20,000,000 annually. Such lines as the Pennsylvania, the Santa Fe, the St. Paul and the Southern Pa-

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cific have laid heavy burdens upon themselves recently in order that their workmen should have better pay and remain at work. If the Wabash is now to show the other railways how not to raise wages on demand, the results are bound to be far reaching.

St. Louis (Mo.) Labor Compendium.

Much talk has been created in industrial circles because of the preliminary injunction granted by Judge Adams of the federal court, St. Louis, prohibiting the leaders of the trainmen and firemen from calling out the men under the entire Wabash System. Such an injunction is not new by any means as is generally supposed. Judge Adams simply reaffirms the principle laid down which led to the imprisonment of Eugene Debs, which simply means this: Individuals have a legal right to quit work if they please, but the head of a labor organization has no right to order a general strike, or to interfere in any way between employer and employe. Judge Adams has carried the principle a little farther than was done in the Debs case, and if his preliminary injunction is made perpetual and becomes a recognized principle in law, it is difficult to see how organized labor can hereafter enforce strikes. The remedy may then lie in the overthrow of the political power that fosters government by injunction and the tyranny of great corporations, for after all is said and done, the wage earners have it in their power to make the government of this country and the courts thereof just what they have a mind to. Mr. Ramsey, president of the Wabash System, is therefore playing with dangerous weapons in taking such a strong stand against organized labor. He may have law on his side, that is a point we can not argue, but if he has, the people have the ballot, and it only needs a little more of this sort of thing to make them use it in a manner that will long be remembered.—The Scrantonian.

[The above is very good argument for "socialists," but the writer thereof, if it is the best he can do, has little knowledge of union labor methods.

In the first place, the head of a labor organization never does order a general strike, nor interfere in any way between employer and employe. How does this "head" come to be the head of a labor organization? By virtue of the votes of the members thereof. By the same token he is their servant, their agent, their representative, and the only authority he can exercise over the members is that delegated to him by the members themselves.

If the members do not vote to strike under certain conditions, no head of a labor organization can "call them out"—he might call till he became hoarse, but they wouldn't come.

If the members do vote to strike under certain conditions, and the said conditions finally exist, they can strike if they want to, and no number of injunctions, by Judge Adams or anybody else, can prevent them from striking.

Again, the proposed strike, voted by a labor organization, may await notification from some officer or officers to the effect that the demands upon which the proposed strike depends have been ignored or refused, and in such a case the proper officer or officers are instructed (by vote of the union to formally notify all members of the said ignoring of said demands, in order that all may know of the facts and all simultaneously follow out the decision of the union when the vote was taken. In thus notifying the members, the officers are but following out the instructions of the organization whose servants they are, and no amount of injunctions, by Judge Adams or anybody else, can legally prevent their obedience to back instructions.

This, however, is what is, by ignorant persons, sometimes termed "ordering the men out on strike;" when, as a matter of fact, no union men are ever ordered out on strike.

It is surprising how widespread is ignorance upon certain matters, and, too, among people who pose as highly intelligent; and until this ignorance is supplanted by intelligence we will probably see frequent repetitions of the term, "ordered the men out on strike."]

Gunton's Magazine.

Those who insist that laborers have a conceded right to strike will have to modify their opinions after reading the injunction issued by Judge Adams, in the United States Circuit Court, at St. Louis, against the employes of the Wabash Railroad, on the 2d of March.

Lawrence (Kan.) Journal.

The decision in the Wabash injunction case in St. Louis will be of the utmost interest to the railroads and their employes. If the injunction is continued the railroads will have found a way to prevent strikes; if it is dissolved there will probably be an immediate strike on the Wabash System.

Des. Moines (Ia.) Leader.

The Dubuque Times contends that Judge Adams' injunction in the Wabash case is not intended to interfere with the right to strike. The Times is technically correct. The injunction restrains the officers of the labor unions from counseling or organizing a strike, not the men from striking. But it all comes to the same thing in the end, for if the men can not organize and choose leaders and act in concert they can not make an effective strike. Judge Adams' injunction, if it is sustained, will make strikes impossible, and that is what it is intended to do.

Journal of Labor (Atlanta, Ga.).

The injunction issued by Judge Adams of the United States Court at St. Louis the other day, at the instance of the Wabash Railway seeking to prevent a strike on the part of its employes, is pushing the doctrine of government by injunction to a dangerous limit.

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The proceedings instituted is one of the boldest and most brazen attacks upon organized labor ever recorded in the courts of this country.

Should the injunction be made permanent, and be upheld by the United States Supreme Court, then, indeed, will organized labor be at the mercy of every cowardly employer and tyrannical federal judge in the Union.

Surely, no such damnable usurpation of authority will be permitted in this free country.

Briefly stated, it appears that for months the employes of that great system have had just grievances which they have vainly tried to have remedied. Committee after committee has waited upon the Wabash officials, trying in every peaceable, honorable way to adjust such differences. As is too often the case, the railway officials turned a deaf ear to all such appeals.

At last, its employes, exercising the rights of agency recognized by law in every other line of commercial dealing, spoke to the company through their duly accredited agents, the Brotherhood of Railway Trainmen and the Brotherhood of Locomotive Firemen.

The officials of these great orders also tried to reason with the railway officials, but they, too, were treated with scant courtesy, and their overtures were brutally rejected.

Then, when it was apparent that a strike was the last and the only resort by which the railway employes could get their rights, the railway officials, making pretense that they wanted more time to consider the demands of the men, sneaked into the United States Court, and upon lying representations of "conspiracy," etc., got an injunction against the officials of the Brotherhood of Railway Trainmen and of the Brotherhood of Locomotive Firemen, forbidding such contemplated strike.

It can not be contended by the railway company that its employes are under any contract to work for a stipulated time, hence, there can be no breach of contract set up.

Therefore, exercising the rights of American citizens, they can work or cease to work whenever they please.

What one man may do ten thousand men may do, simultaneously or collectively when no contracts are violated, and when they act voluntarily and without committing any breach of the peace.

The Wabash employes have a legal right to appoint any agent or agents they please to represent them in such controversy with their employers.

They can designate or empower the President of the United States or a bootblack to represent them as they may elect, and right here some courts and many employers of this country go wrong in dealing with organized labor. With purblind folly they insist upon characterizing organized labor as an interloper —as outsiders who have nothing to do with them in their dealing with their employers.

Why can't employes act through their orders or unions? Upon what legal principles are such employes to be deprived of the right to employ such agents to transact their business?

Everybody with an ounce of sense recognizes, these days, the fairness and justice of employes organizing for their mutual defense and protection, and yet how can such organizations be effective unless the order or union act for its members as their agents in dealing with employers?

The injunction issued against the officers of these two great orders is utterly illegal, unjust and tyrannical.

It is to be hoped that at the hearing the injunction will be promptly revoked and the Wabash officials be made to face their employes in the open.

Too often the federal courts furnish an asylum for the corporations in their cowardly wars upon their employes, and it will be well for this republic for the day soon to come when blanket injunctions of this character be dispensed with.

Dubuque (Ia.) Telegraph Herald.

A New York judge, following the example of Judge Adams at St. Louis, has enjoined the president of the International Brotherhood of Paper Makers from ordering a general strike at the Taggart paper mills or any other other mills that would affect the St. Regis Paper Company, employing 325 men, which has been shut down for the last week owing to a strike of the machine tenders.

Tuesday in Chicago Federal Judge Kohlsaat issued an injunction writ restraining certain Indiana coal companies and ten individual operators from continuing their combinations for the regulation of coal prices and output.

These are two of the most recent uses of the injunction writ, and as will be noted, one is directed against labor and the other against capital. In both instances the action of the court was arbitrary.

What is there to prevent a Republican judge or a Democratic judge from enjoining an organization of men from voting at an election because some interested party, who will suffer through their suffrages, sets up in a court petition that they have been bribed and adduces sufficient plausible though fabricated evidence in support of his contention?

What is to prevent a court from enjoining a son from going to the bedside of his dying father because another son represents to the court, from selfish motives, that the father's health will be jeopardized by the presence of the enjoined son?

What is to prevent a court from enjoining a newspaper from publishing legitimate news because some fellow known to the newspaper as a villain, and who fears exposure, represents to the court that he is about to be slandered?

The answer is, Nothing. The courts are absolutely unrestricted. They can regard the constitution or not as they please with temporary injunctions. Ob-

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viously there is crying necessity for definition and restriction of the rights of courts in the use of the injunction.

Jacksonville (Fla.) Labor Journal.

What are we coming to? The encroachment of courts upon the individual rights of citizens is becoming alarming.

Rights of citizens guaranteed under the Constitution of the United States are ruthlessly ignored, and indignities are attempted in the name of law, which would put to shame the most tyrannical government of the ancient feudal lord. In fact, it would seem as if we were reading a page out of the history of the dark ages, when we read of the aggressive actions of so-called courts of justice, in dealing with workmen in various parts of this great country.

The principle upon which our modern judicial machinery is run, is the one that "Might makes Right," and the man with the dollar is the one who controls the wheels of justice. Take, for instance, the recent injunction of Judge Adams, of the federal court at St. Louis, forbidding the men employed on the Wabash Railroad from going on a strike, or in plain words, quitting work, when they don't think they are receiving a fair equivalent for their labor.

Just think of it! You have your labor to sell; naturally you wish to secure the highest price for it. Under the Constitution you are guaranteed the right to "life, liberty and the pursuit of happiness."

You go to work for a corporation; you don't think the wages they pay you compensates you for the services you render your employer; you ask for more wages; your request is refused, and you decide to quit work. Then the court steps up with an injunction, forbidding you to stop work.

Now, reader, where is your liberty as a citizen gone? Have you not become a slave, subject to the commands of a judge who is openly violating the basic principles upon which the government is founded, and utterly ignoring your rights as a free citizen.

Go a little further. In Waterbury, Conn., a court issues an injunction forbidding workingmen from using money, which is theirs, which they have earned by hard labor and careful saving, and because they do not think they were receiving a fair compensation for their toil, and had quit work, and were relying upon that which they had saved up to buy the necessaries of life. The court steps in and says, you can't use this money, nor can your sympathizers use the money they have on deposit in the banks. Was there ever a more unjust and tyrannical usurpation of the rights of private citizens attempted in a free country than this? Is it any wonder, when men see their liberty infringed upon in such a manner, they become desperate and resort to the law of might to attain their object? The court, where only exact justice should rule, sides with the employer and attempts to force the employed to do that which they do not wish to do. Such actions only cause the workingman to look upon the court as his enemy, and make him think the only redress for his wrongs is in the Law of Might.

Again, we have a sample of such usurpation of power by courts in the massacre of miners by a deputy sheriff in Staniford, West Virginia. The evidence shows that a deputy sheriff and posse fired into houses where miners were sleeping, killing men utterly defenseless, who did not make any resistance and were not even called upon by the posse to surrender. Of course there will be nothing done to the sheriff for killing defenseless men in cold blood, because money will rule the court and justice will not be meted out to the murderers.

Many other cases too numerous to mention occur almost daily.

Now, as a citizen, interested in the welfare of your country, do you not see in these actions of judges, a danger which may in time, if not checked, become more and more aggressive, until men, goaded beyond the power of endurance, forget their duties as citizens and take summary vengeance upon their oppressors.

Is it not your duty as a man to study the condition of affairs, and use your best endeavors to assist in checking this threatened danger, both for your own benefit and that of your fellowman?

"Procrastination is the thief of time," and if you fail to do your duty now, and at the ballot remedy the condition of affairs, it will be only a question of time when more drastic measures will be used.

For this purpose are trades unions formed to secure equal justice to all, and to guarantee to each and every man the full and free exercise of his rights under the Constitution of the United States, and for the purpose of bettering his station in life and securing to him the full benefit of the efforts of his labor.

A word to the wise is sufficient, and the sooner you take an interest in these matters and co-operate with your fellowman, the sooner will such injustice to citizens be remedied, and peace and good will come, where now exist only distrust and turmoil.

Cleveland (O.) Leader.

The Wabash Railroad has, through its president, Mr. Ramsey, gone into the courts at St. Louis, and asked that the supreme officers of the Railway Trainmen be enjoined from "coercing the employes" of his railroad into going on a strike. He accuses these officers of being in a conspiracy against his railroad, claiming that certain employes are unwilling to strike, but are about to be forced by the vows which they have taken to the unions of which they are members. Mr. Ramsey raises an odd question, and one with a broad general bearing. He hopes to overturn the relations between the workmen and their unions and to rob the latter of a good part of their power. By depriving the dissatisfied of their power to persuade the others to action, he is merely shifting the relations, a

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change of government merely without a difference.

The railway trainmen's officers lose their power, and this is usurped by the railroad president. He immediately becomes the head of a band of men who are submissively satisfied. The courts are asked to interfere in the relations between the officers and their employes. But the broad question is not which of these controlling forces shall have the command of the whip hand for the time being. That measure being successful, a good many of the strikes of the United States would immediately become impossible.

Crary (N. D.) Courier.

The most outrageous decision of a court of justice in this country for a long time is the injunction order of Judge Adams of the United States District Court in the Wabash strike case. In substance it enjoins the employes of the corporation for quitting the employment of the company, or persuading others not to work except at a fixed price. This is further than courts have heretofore gone. Let us analyze the decision. The employes are simply selling their labor as a commodity to the company at a fixed price. Assume for a moment that there is no mutual contract. Then the employes have the right to decline to deliver any more of the commodity unless the price be satisfactory—to quit work. A farmer is selling his wheat to a grain firm. He wants a better price. The firm refuses to give it. They secure an injunction compelling the farmer to deliver the commodity. The cases are parellel. If the laborer can be compelled to deliver the commodity so can the farmer, under the ruling of Judge Adams. And neither is permitted to suggest to his neighbor to sell no more of the commodity, whether it be labor or wheat. A federal court, however, will grant an injunction authorizing the buyer to take either. It is urged that there was a mutual contract between the Wabash and its employes, under which they were to furnish a certain amount of labor. If this be true, the Wabash was not entitled to the writ of injunction. Every lawyer, and even West Virginia justices, who are supposed to know less than any other known specimen of the genus homo, knows that it is a fundamental principle of law that the remedy for breach of contract is an action in tort—to recover damages for the injury done—not to stop the doing. The Wabash had an adequate remedy at law, and if it had, was not entitled to the writ of injunction.

Chas. H. Kerr, in American Labor Union Journal (Butte, Mont.).

The capitalists who rule the United States have lately made a gigantic blunder. The Wabash Railroad has asked for an injunction to prevent its employes from striking in what has always been regarded as a perfectly lawful manner and a United States judge has granted the injunction.

Socialists have been arguing for many years that the government of the United States, like the government of any other "civilized country," is under the control of the capitalist class and is run for the benefit of that class.

But the schools, the churches and the newspapers have taught that America was the land of the free, also the home of the brave; that Europe might have its social classes, but that in America the laws are enacted and administered by the people and for the people.

Here and there a workingman of intelligence enough to think for himself has accepted the Socialist position, but the vast majority thus far have believed what the hired men of capitalism have taught them.

This belief on the part of the workers has been the strongest of all forces for keeping them in subjection to the capitalists, the common prudence on the part of the latter should have induced them to do all in their power to keep this belief unshaken.

Indeed, the far-sighted capitalists controlling many of the most important railways had already foreseen the possibility of a conflict with organized labor, and forestalled it by a small concession in the way of advanced wages.

But the managers of the Wabash could see only that an advance in wages meant a diminished dividend; a United States judge could see only that an injunction was desired by some of the men to whom he owed his position, and the result is a tyrannical injunction which strikes at almost all the rights which the laborers thought belonged to them, and will convince hundreds of thousands of hitherto unthinking workers that the time has come for serious thinking.

Here is the opportunity for Socialists—an opportunity such as we might have waited a decade for. We no longer need to prove slowly and painfully that there is a ruling class and a subject class, that the laborer's interests are with the latter and that he must act with his fellow laborers to get relief. All this has been proved for us.

We no longer need to argue that the conflict is a hopeless one if waged by means of strikes; this has long been true but not always easy to demonstrate. The frank brutality of this recent federal injunction has made the whole situation plain to the dullest observer.

Hereafter in a strike the capitalist not only controls the food, clothing and shelter without which the laborer can not long survive; he also controls the courts, backed by bayonets, rifles and Gatling guns, and can crush this ineffective revolt of unthinking laborers as quickly and as relentlessly as may seem good to him.

And the Socialist smiles, not in derision, but in sympathy and joy. For he knows that the laborer, cut off by forces beyond his control from his outworn and helpless fashion of struggling will fight in the only way left open to him, will assert his manhood at the ballot box, will

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vote once and for all to abolish the last and perhaps worst form of slavery, and will lay broad and deep foundations for a happier life for all.

Crookston (Minn.) Journal.

The labor unions feel that the very life of their organizations are at stake and that if the courts retain the right to prevent strikes in this way a death blow has been struck at the unions. Here is opened up again the old contention in regard to government by injunction. It is certainly a fact that there has been a tendency with many judges toward the assumption of an unprecedented amount of power, and this St. Louis court has gone to the extreme. The American workman, through organization, has been enabled to improve his lot and frequently it has been necessary for the men to strike to gain fair play. If this right is taken away it means great loss to the employe and a corresponding gain to the employer. Many corporations are fighting the unions, and many are the charges that the court usually favors the corporations. In the present case the court comes near to taking away individual rights, and if the temporary decision stand, no one could with any certainty predict just who or what might next be enjoined. We have three departments of government, and each should at all times keep safely within its own jurisdiction.

Duluth (Minn.) Labor World.

"The death-knell of organized labor in the United States has been sounded by the injunction recently issued by Judge Elmer E. Adams, of St. Louis," says the New York Sun. "The death-knell of organized labor has become somewhat of a joke among people who have good memories," retorts Herbert N. Cassen, the preacher-labor advocate.

"Again and again it has been sounded during the last fifty years; obituaries have been written; funerals have been arranged and graves prepared; yet the rude and unobliging labor movement lives on, healthier and heartier than ever."

The fact is that the labor movement is one of those extraordinary things that thrive on ill-treatment. You may weaken it, perhaps, with kindness or prosperity, but you can not kill it with injustice.

It is the child of conflict. It is no hot-house weakling. Like iron, not crockery, the more it is hammered the stronger it grows. The reason why is very plain—the greater the opposition the greater is seen to be the need of organization. Trade-unionism has been killed as often as Finnigan's cat. To mention a few instances, it was killed by the conspiracy laws adopted from the English code when the Republic first began; it was killed by the verdict of a Philadelphia judge in 1806; it was killed by the verdict of Judge Edwards of New York, in 1836; it was killed by the disruption of the National Labor Union in 1868; it was killed by the disintegration of the Knights of Labor in 1893; it was killed by the failure of the A. R. U. strike in 1894; and now the poor thing is dead again, because of a scrap of paper signed by a judge who is the hired servant of the St. Louis Transit Company.

The history of the last century shows that organized labor is as persistent as Sir Thomas Lipton, and well, it is a great deal more successful. It can receive no heavier blow than it has already withstood again and again, and it will survive, no doubt, as long as the United States endures.

These perpetual "death-knells" remind one of the little verse written by Oliver Goldsmith, which ran as follows:

A dog went mad and bit a man,
And though no cure was tried,
The man recovered from the bite;
The dog it was that died.

Detroit (Mich.) Free Press.

There is a charge that courts of equity are usurping the functions of the regular administrators of the criminal law; that the injunction judges are making conspiracies out of open conference and free speech; that totally unwarranted inferences are drawn, as that a strike on the Wabash would mean a strike throughout the Brotherhood; and that there is a manifest attempt on the part of courts assuming questionable jurisdiction to destroy labor combinations by forbidding the direction of their policy by representative officers chosen for that purpose.

Even if it be true that the men are under contract that is not yet terminated, it is regarded by many authorities as beyond the powers of a court to attempt the enforcement of specific performance by injunction, the accepted remedy being in an action for damages by the company, as in the Waterbury case, modeled after the Taff Vale case in England. Then there is this other question to which attention was given when the injunction first issued. If it be conspiracy for the officers of a union, chosen and invested with authority by its membership, to tell its men to stop work if they are not paid more, why is it not a conspiracy for the officials of a railway system, invested with authority by its stockholders, to say that the men must quit work if they do not accept lower wages? What is the legal authority for discriminating between combines or organizations, particularly where there is a degree of interdependence in their relationship? It is not for the layman to pass upon the questions raised, but they must in the end be resolved by the courts.

Mitchell (S. D.) Capital.

Here is a new phase in the matter of strikes. The employes of the Wabash Railroad were about to enter upon a strike over the matter of wages and it threatened to spread to other lines which would affect the business of the country to a considerable extent. The president of the railroad appealed to a St. Louis judge to issue an injunction preventing

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the officers of the Brotherhood of Firemen from issuing the order which would put the firemen on a strike. No sooner was the injunction issued than did the firemen proceed to secure the dissolution of the order issued by the court. In this, no doubt, the firemen will win, as of right they should, for it is putting too much of a restraint on the right of an individual. There is no law in the land which can compel a laborer to work if he does not want to, and it should be so in the case of a collection of individuals. If the firemen have grievances of which they can not secure an adjustment except by quitting work they should not be denied it. At the same time the firemen should in no way prevent the railroads from operating their lines with whatever assistance they can secure. It is too often the case that strikers wilfully prevent public business being carried on in order to gain their point. This is where they exceed their rights as individuals or an organized body of labor.

Lincoln (Neb.) Commoner.

The Democratic platform of 1896 declared: "We specially object to government by injunction as a new and highly dangerous form of oppression by which federal judges in contempt of the laws of States and the rights of citizens become at once legislators, judges and executioners."

This plank was bitterly denounced by Republican newspapers and was frequently referred to as an assault upon the courts.

Interest in this protest against government by injunction has recently been awakened because of the writ issued by Judge Adams in the United States Circuit Court at St. Louis. Upon application by the officers of the Wabash Railroad Company, Judge Adams granted an injunction restraining representatives of the labor unions from "ordering, coercing, persuading, inducing or otherwise causing" the employes of the railroad to strike or quit the service of the company. Representatives of the labor union were also enjoined from "ordering, advising or influencing employes on connecting lines to refuse to interchange traffic."

It is somewhat interesting to observe that even Republican newspapers are finding it necessary to protest against this "highly dangerous form of oppression by which federal judges in contempt of the laws of States and the rights of citizens become at once legislators, judges and executioners."

The Chicago Record-Herald, a Republican paper, referring to Judge Adams' injunction, says that it "is such an extraordinary exercise of the power of injunction that it may well invite public apprehension regarding the extent to which this arbitrary instrument of the court may be used in the future."

The Record-Herald further says that "if this injunction stands and is finally written into the laws of our country, it is difficult to conceive of the possibility of fixing any limit to government by injunction."

The Des Moines Register and Leader, also a Republican paper, says that heretofore it has been assumed that the right of labor involved the corresponding right to refuse to labor and that the exercise of this latter right means men acting as individuals or collectively. The Register and Leader points out that if Judge Adams' injunction is sustained, "it will revolutionize the relations of organized labor to its employers and will practically eliminate the strike as a weapon of defense."

Judge Tuley, an Illinois State judge at Chicago, makes interesting comment upon the Adams injunction. Judge Tuley says that he is not surprised at any injunction of any kind being issued, and he adds:

"I regret it very much because I believe that the issuing of such writs of injunction brings the administration of justice into contempt. It breeds discontent and will reap the whirlwind some day from the seeds so sown.

"The day may come in the not distant future when the working classes will have political control and will appoint judges who will also issue writs of injunction—in their favor. I see no reason why a writ of injunction should not as well issue against a railroad enjoining it from discharging any employes or from failing to pay such employes a certain fixed rate of wages. It would be no greater departure from the true principles that ought to govern when issuing such writs.

"We judges are getting to be the whole thing in government. We are approaching a condition that will be without precedent in the history of the world, in which the governing power will be exercised by the judges, with the executives and legislators as mere figureheads in carrying on the government. It is time to call a halt."

Will any intelligent man undertake to say that Judge Tuley is desirous of bringing the courts into disrepute? Is it not true, on the contrary, that men who protest against this "highly dangerous form of oppression" as Judge Tuley does show a much deeper anxiety for the maintenance of the dignity of the courts than do those who, either directly or indirectly, are responsible for the effort to establish government by injunction?

Judge Tuley well says, "It is time to call a halt." That is what the Democrats said in 1896: and it is significant that while the government by injunction plank of the Chicago platform was bitterly denounced and many claimed that that plank had considerable to do with the defeat of the Democratic ticket, since then injunction writs issued by federal judges have become, by reason of their radical terms, more and more oppressive, and this form of oppression has come to be so "highly dangerous" that even Republican newspapers are moved to enter vigorous protest.

D. F. Bradley, president of the Iowa College, submits to an Iowa paper two questions, as follows: 1. If a judge may enjoin union labor from ordering a strike, why may he not upon application enjoin

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capitalists against reduction of wages, or other acts alleged to be oppressive to labor? 2. If it is good law for United States courts to intervene in behalf of interstate railroads, why is it not good law for the same courts to redress grievances of employes engaged in interstate commerce? The Sioux City Journal, in reply to these questions, says that "the obvious answer in both queries is that an injunction in one case would be just as logical as in the other." And yet we do not recall an instance where a federal judge has applied the writ of injunction in this way to corporations.

Boyce's Weekly (Chicago, Ill.).

No such sweeping injunction as was issued by Judge Adams of the federal court at St. Louis against the officers of the various unions of trainmen employed on the Wabash System, has ever before come from a court in the United States. The order absolutely forbids the men from going on strike. While it does not say that no individual must leave his employment, it has precisely the same effect in so far as leaving employment would be an effective weapon in making the railroad officials listen to a request for more pay.

Officials of the Brotherhood of Railroad Trainmen and the Brotherhood of Locomotive Firemen declare that President Ramsey acted in bad faith, as he took advantage of an extension of time from noon to 5 p. m., asked for by and given him to come to a decision, to go into court and obtain the injunction. The men will obey the order, but will also make a legal fight to have it dissolved.

If this injunction holds, enjoining men from quitting work when a demand for more pay is not granted, would an injunction hold denying a railroad corporation the right to reduce wages? If one, why not the other? Employes make contracts as well as corporations, and a reduction of wages would cause loss to these contractors as well as a raise in wages causes loss to the railroad.

Let the higher courts uphold this new judge-made law, and open union will disappear, to be replaced by secret societies and anonymous demands. The power to arbitrate will no longer exist, for arbitration implies organization and leaders. But to be a leader, under this new ruling, means to be enjoined from doing the will of those represented. Thus public opinion will not be able to reach and modify demands, and anarchy, in the sense of disorganization, will ensue.

"Every person ought to find a certain remedy in the law for all injuries and wrongs which he may receive," is the language of the Constitution of the State of Illinois. The Constitution of the United States gives every one the right to speak or write opinions on any subject. This injunction contravenes not only the spirit of the supreme law, but of every man's right to do in an orderly manner those things that will best serve his material interests.

Jacksonville (Fla.) Labor Journal.

Supposing the St. Louis judge makes the injunction against railroad men permanent, will organized labor close up shop and get out of business? asks an exchange. Will the organizations that have been struggling for years building up good, solid, well-disciplined unions stampede and go back to the woods? Will the printers, cigarmakers, bricklayers, painters, carpenters, plumbers, machinists and such lock their doors and throw the keys into the river? Will they?

Railway Clerk.

In no age of the world, and in no civilized country has the usurpation of power been more complete than at the present time, in free America—"The land of the free and home of the brave," the land over which the Stars and Stripes have been planted at the sacrifice of countless numbers of human lives, whose every thread is dyed in the crimson blood of the flower of American manhood, and steeped in the tears of anguish of American womanhood, but which, alas, now waves over our land in silent mockery of the noble sentiment which placed it there.

"Is individual liberty dead?" No, 'tis only sleeping. Will the usurpation of powers not delegated by the people endure? No. Government by injunction must go. Go down before the storm of popular indignation which it has aroused, but when it breaks forth will twentieth century civilization be satisfied with reclaiming the powers which have been usurped, by the peaceful solution of the ballot, or will a natural born leader of men, a genius of administration of Napoleonic ability arise from the great middle class, will the common people then have found a leader through whose inspiration they will also reclaim that which has been exploited from them by centuries of oppression—the unconsumed product of labor, which labor alone produced?

Time alone can tell, for Nature hath her subtle ways.

Anaconda (Mont.) Labor-Socialist.

Without discussing the merits of the proposed strike or the merits of strikes themselves, the question of whether or not a body of workingmen may not vote to strike "or quit work" has never before in the history of our country, perhaps, been met with so arbitrary an answer as it has in the injunction of Judge Adams. * * *

Injunctions of a number almost beyond the power of man to compute have in time past been issued by courts throughout the country, restraining strikers from performing certain acts of violence. Not always were the things enjoined of a violent character, but merely, by being enjoined, assisted in strengthening the hands of the capitalist. Hardly without exception the judges of the bench of the country have conceded to every application for an injunction directed against the laboring men without any apparent hesitation and with no regard as to

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whether or not an injunction could lie in the premises. In a vast majority of cases it is safe to say that no injunction could lie in good law, but the ever-ready subserviency of the judiciary to comply with the demands of the capitalistic classes has easily swept away this consideration and the injunction has issued notwithstanding.

In the injunction proceedings brought before Judge Adams, however, an almost wholly new reason is brought forward as to why an injunction should issue. "The men are going to quit work in a body; your 'honorable' court is asked to say to the workingmen that they can not quit and if they do quit they are in contempt of this court and subject to punishment." And the "honorable" court granted it.

Though flagrantly in violation of all law, of all ethics, of all sense of fair play, the "laboring man bowed in submission to the law."

Let all men who have found pleasure in saying that when a man wants to quit work let him quit, let all men who have found pleasure in saying that the ways of laboring men is by force and "a la lantern;" the way of the furious mob; let all men observe that the laboring men bowed their heads in submission to the law. Let them further take notice that it was the capitalist that appealed to the sacred institution which is popularly supposed to sit in blind justice in deciding the rights of all men and asked the court for something that the statute books never have said could be done; and let them notice that the judge, unquestionably prostituted to the very interests that appealed to him, "granted the injunction." The men were asked for more time and they granted it; they submitted to the law. The capitalist was appealed to for a concession and he refused it; deceitfully asked for more time to consider the demand in order that his purchased jurat might have an opportunity to draw up the necessary document. And let all men observe that when the laboring man comes before the people and asks that laws be enacted which shall make impossible "government by injunction," they are called anarchists and nihilists and are told that they are attacking the most sacred institution of our nation. And let the laboring man observe that the arbitrary action of Judge Adams in St. Louis a few days ago will become the universal action of the entire bench if the laboring man continues to vest the power of the political machinery in the hands of either of the old parties.

Let all men take notice that the laboring men "in bowing in submission to what is not law," are really observing the peaceful and orderly course, but that they are only biding their time when the power shall come into their hands through the movement of unionism and socialism. Capital will raise its voice in protest with tears in its eyes, but it will find that the time when consideration for it over the rights of all the people has passed. It is such acts as Judge Adams' that hastens the day of perfected unionism and accomplished socialism.

Sioux City (Ia.) Star.

"Government by injunction" seems to be enjoying a new lease of popularity on the part of employers who seek to evade the just demands of striking employes. They find it cheaper to have the courts settle their troubles than to face the music themselves.

Lowell (Mass.) Sun.

Sometimes strikes lead to trouble that justifies restraining injunctions. But a strike that never took place can not be said to have caused any trouble; yet the trouble is anticipated by the judge who issued the Wabash injunction. It recalls the act of the schoolmaster who whipped a particular boy regularly every morning, not for what he had done, but for what he might do. The judges who abuse the power of issuing injunctions will be regulated in time. Government by injunction is the worst kind of autocracy. It can not last long in this country.

Houston (Tex.) United Labor Journal.

Thomas Jefferson foresaw in a possible corrupt judiciary the greatest danger that could menace the Republic, and the wisdom of the foresight of the author of the Declaration of Independence is not lacking of confirmation by current events. The temporary injunction issued at St. Louis by a federal judge against the Wabash Railway employes is the most monstrous usurpation of authority and disregard of legal precedent that this country has ever witnessed. Not only has the Constitution of the country been violated in issuing this injunction, but a well known precedent has been disregarded and a federal judge has proceeded as if this country was a monarchy and the money power were king, with no written law to confine the caprice of the regent.

The common law of England seems to have recognized the right of laborers to organize for the purpose of fixing the price of their labor, because during the reign of Edward VI and George III statutes were enacted punishing workmen who conspired to reduce the time or to raise the price of labor. These statutes, however, were repealed in England years ago, and the law in that country is plainly set out in Reg. vs. Rowlands, 5 Cox C. C. 436, in which the court held that "the law is clear that workmen have the right to combine for their own protection and to obtain such wages as they agree to demand. This is a plain right upon which no doubt should ever have existed." The decisions in this country have been in line with the English decision quoted. The Supreme Court of Massachusetts, in Carrew vs. Rutherford, 109 Mass. 1, held as follows: "Every man has a right to determine what branch of business he will pursue, and to make his own contract with whom he pleases and on the best terms he can. He may refuse to deal with any man or class of men; and it is no crime for any number of persons, without any unlawful object in view, to associate themselves together

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and agree that they will not work for or deal with certain men or class of men, or work under a certain price or without certain conditions."

The Wabash employes complain that their wages are too low and an agreement not to work unless they are paid higher wages is not an indictable conspiracy because the object is legal.

The very question, however, involved in the Wabash affair came squarely before the federal court in Arthur vs. Oakes, 63 Fed. Rep. 310, where the court declared "that if employes in good faith peacefully exercised their right of quitting, by persuasion or conferring among themselves and without the violation of an express contract, intending to better their condition by receiving such wages as they deem just, it is not illegal, though they are aware that the employer's business shall be stopped and the public inconvenienced."

In view of these decisions, there ought not to be any doubt as to the final outcome of the Wabash injunction, if it has to be carried to the court of last resort.

Alton (Ill.) Sentinel-Democrat.

If this order can be upheld in the courts it sounds the death-knell of organized strikes in this country. No order of a court, however, can prevent people from stopping work, and the men on the Wabash System are at liberty to walk out whenever they wish to do so; it is the organized feature of the strike with which the injunction interferes and without which, of course, there could be little or no hope of the success of any strike. If it can be shown that this is a conspiracy in restraint of interstate trade, then Judge Adams, who issued the injunction, will wish to make his ruling good; if, on the other hand, it is demonstrated that the order of the court interferes with the liberty of the individual, it will certainly be dissolved. The question thus presented is one of paramount importance not only to the industrial but to the commercial interests of the country as well. We are rather inclined to the belief that Judge Adams has far exceeded his authority and that, in the language of the venerable Judge Tuley, of Chicago, he is simply helping to sow the wind, of which this country is yet to reap the whirlwind.

Canton (O.) Craftsman.

The slave must work if he will or not. The free worker can cease working when he will. Such has been the undisputed distinction between these two classes of workmen. Yet such distinction will be entirely obliterated, there will be no free workmen in America, if Adams, Kellar and Jackson are permitted to continue their breakneck speed in the use of the injunction.

When an injunction was issued against the United Mine Workers last fall forbidding them to feed or aid in any way their starving and suffering brothers, it was generally supposed that the infamous use of the injunction had been stretched to the extreme. The Adams injunction, however, indicates that the use of the injunction is still in its infancy, and that there is no limit to the use of this legalized bludgeon.

Judge Tuley, of Chicago, has sounded a warning note against such use of the injunction, and in commenting upon the action of the federal court against the union men employed by the Wabash Railroad, he said:

"We will reap the whirlwind some day from the seeds so sown. I am not surprised at any injunction of any kind being issued. I regret it, because I believe that the issuing of such writs of injunction brings the administration of justice into contempt. It breeds discontent.

"The day may come, in the not distant future, when the working classes will have political control and will elect or appoint judges who will also issue writs of injunction in their favor.

"I see no reason why a writ of injunction should not be issued against a railroad, enjoining it from discharging any employe or from failing to pay such employe a certain fixed rate of wages. It would be no greater departure from the true principles that ought to govern when issuing such writs.

"We judges are getting to be the whole thing in government. We are approaching a condition that will be without precedent in the history of the world, in which the governing power will be exercised by the judges, with the executives and legislators as mere figureheads in carrying on the government. It is time to call a halt."

Judge Tuley has spoken his opinion. What think you, working men? Is it time to call a halt? Is it time to apply a remedy to the malady? If so, take a course in the study of economics. Make yourselves doctors of economy and begin to apply the medicine with a vengeance, but, mind you, apply it to the cause and the effect will disappear.

Danville (Ill.) Commercial.

A railroad official, in speaking of President Ramsey, of the Wabash, said that the latter was never beaten in a strike, his tactful methods always enabling him either to make a compromise with his men or to defeat their end. His first experience was at Indianapolis, when he was a railroad official there. He was threatened with a big strike of telegraphers on the Big Four. He had operators waiting at every station to take the places of the men who left the keys. He found that some of his subordinates were giving the operators secret encouragement, and the first thing he did was to discharge the officers. Then he called for a committee of the men. He locked himself up with them for two days and prepared a schedule of wages. The schedule was accepted. The strike did not occur, and the extra operators required were sent away.

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St. Paul (Minn.) Dispatch.

Judge Adams' injunctional order, restraining the officers of the trainmen's union of the Wabash from issuing the order for a strike which had been voted, is getting all the comment its advance in the grasp of equity jurisdiction calls for; varied in its nature from fierce denunciation as another illustration of "government by injunction," to laudation as a progressive step in the solution of this chronic labor trouble. But if the injunction stands as a legitimate use of equity powers, its logic halts short of the action needed to give full effect to the ancient maxim that he who seeks equity must do equity.

The threatened strike arose out of a refusal of the company to accede to a demand for what would have amounted to a raise in wages. The effect of the injunction, whether temporary or made permanent, is to compel the men to continue in their work at the wages in force, without at all passing upon the question out of which the action of the court sprung. While it is true that the strike might have prevented the company from fulfilling its contracts and its obligations to the public, and while it is a legitimate use of power to prevent this injury to the property of the company and the interests of the public, still complete equity can not be done without an inquiry into the cause of the dispute and a judicial adjustment of it.

That would, of course, bring about compulsory arbitration without statutory authority, and the court may hesitate to further widen its jurisdiction. But it is clear that judicial action can not stop at a point where it obliges employes to continue at work at wages they deem inadequate without strengthening the popular, but unfounded, impression, that courts lean to the side of the rich and influential. The question, so far, at least, as it touches these corporations and their employes charged with a public or quasi-public function, will not be answered until courts take or are given that jurisdiction.

Los Angeles (Cal.) Labor News.

That St. Louis judge must realize by this time that he struck a blow at the freedom of every American when he issued that injunction against the Wabash employes. To deny a man the right to ask for higher wages is about as reasonable as asking a man to quit breathing, and the public has denounced this tyrant with as much emphasis as it did Baer when he laid down the law to President Roosevelt.

Cleveland (O.) Leader.

Since it has become the fashion for big corporations to resort to the injunction whenever a dispute with their employes arises, it is only right and proper that the workingmen would seek to get a standing in court. Surely they have the same right to contest the granting of an injunction that employers have to ask for one, and, while the judge may sometimes appear to disregard the rights of labor, there need be no cause to fear that they will disregard the laws when labor asks for relief as it has the right to do.

So long as the courts are open to all it is better to make them the battleground for the contending forces of capital and labor than to settle such contests by violence. Some day, if the precedents now being established hold, labor may go into court and get an injunction that will surprise capital as some of the recent injunctions have surprised all the people.

Vancouver (B. C.) Western Socialist.

The names of Kellar and Jackson, of West Virginia, are no longer the blackest on the judiciary list of the United States.

A new tyrant, greater than either of these, has arisen in Missouri, and the historic name of Adams is sunk in the darkest mire of judicial degradation.

The Wabash Railroad Company and its employes have differed with regard to the wages that some of the trainmen should receive. * * *

From a corporation point of view, this is undoubtedly justice, in its highest, purest form.

Judge Adams, if he tried to appease his conscience, would probably argue that railroads are common carriers, having a duty to the public to perform; that the public interests are the paramount interests and that the suspension of traffic on the Wabash could not be permitted to enable either the railroad or its employes to gain an advantage over the other.

But such reasoning is not only dangerous in principle but outrageous in practice, because the courts of this country have too often failed to discover that the public has any rights when corporations bent on plunder are brought to bay.

That Judge Adams should have discovered that the rights of the public with regard to the railroads were so sacred just at a time when the discovery would enable the Wabash to avoid a strike for higher wages, is not only an outrageous demonstration of hypocrisy, but a judicial crime.

To say that the officers of unions composed of employes of public-service corporations shall not order a strike, is, in effect, to do what organized greed in this country is trying its utmost to do—to destroy the unions themselves.

Because the right of labor to organize is of no value if it be denied the right to carry out the purposes of its organization.

And the most important purpose of every labor organization is to secure for its members higher wages, using when necessary the passive weapon of refusal to work to secure such demands.

Judge Adams, having denied the right of Wabash trainmen to use their unions for a legitimate purpose, we say, with all the reverence that the late Rev. Joseph Parker felt when he used the same ex-

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pression in the City Temple in London a few years ago, God damn such a tyrant.

By this misuse of judicial authority, he is trampling under his feet one of the most sacred rights of his fellow men.

He is making it easier for corporations to grind their employes into finer powder and making it harder for their victims to obtain even the smallest measure of justice.

If it be established as a principle of law that the officers of labor unions can not order a strike against a railroad as a public-service corporation, it follows that the officers of other unions can not order a strike against a strect railway company, a gas company, a water company or a telephone or telegraph company.

In fact, judges like the shameless Adams might easily extend the list to include livery stables, hotels, restaurants and almost an infinite number of other industries.

The Wabash injunction is thus an entering wedge, that if permitted to remain will split every labor union in this country wide in two, by taking from them the very purpose of their organization—the power to compel organized greed to let go a little more of its plunder, by refusing to work for wages that are considered grossly unfair and unjust.

But, in another way, men like Adams may prove to be public benefactors. Their outrageous acts of injustice are arousing labor to the force that is enslaving it. Every criminal injunction makes still plainer the fact that there are two classes in this country—those who have not—that those who have always control the government, no matter which party is in power and that they are enabled to do so, notwithstanding their relatively insignificant numbers, by duping the millions of wealth-makers into dividing their votes between the old capitalistic parties, neither of which has any genuine interest in the cause of labor.

There is a beautiful country here for labor to rule any time that it wishes to take possession of it at the polls.

But those who produce the wealth of the country can never take possession of it so long as they permit the tail to wag the dog—the 6,000 millionaires and multimillionaires to name the candidates for which 14,000,000 free men (free blind men would be a better expression) shall vote.

And until they do take possession of the government they will continue to be oppressed by the capitalist class, both in court and out of it.—Detroit Times.

Anderson (Ind.) Bulletin.

The workmen of the Wabash Railroad Company have done much to strengthen the cause of organized labor and to dignify trades unionism in their conservative course in a threatened strike. To the letter they have respected the harsh and tyrannical order of the court, seeking by orderly and legal means to have the oppressive order of the court lifted. Heretofore in such crises bad counsel has gone the length of inducing enjoined bodies of workingmen on strike to defy the orders of the court, with most unhappy results in all cases, ensuing disorder and turmoil usually obscuring the more serious issue of tyrannical rule by injunction.

Idaho Unionist (Boise).

The sweeping injunction issued by United States Judge Adams at St. Louis against the employes of the Wabash Railroad is the most drastic document ever drawn in this country in the way of a restraining order. It is extreme even in this day of judge-made law, when the rights of the citizen under the Constitution are ignored daily at the whim of some member of the federal or other judiciary in one section or another of this land of the free.

It has been truly said that the best way to secure the repeal of an obnoxious law is to rigorously enforce it. This the Unionist believes to be equally good logic in the case of government by injunction. While no shadow of law exists on which to base these injunctions, yet the fact of their continued recurrence and their increasing restrictions of those prerogatives which are not only guaranteed by the Constitution, but which form the basic principle of human liberty, will cause the people of this country to rise in protest, and, by the enactment of specific law, "restrain" federal and other courts from the exercise of such arbitrary and unwarranted power as is now assumed.

Jefferson City (Mo.) Tribune.

The House (of the Missouri Legislature) Tuesday afternoon adopted a resolution by Mr. Collins, of St. Louis, deprecating the action of the federal courts in using the injunction power of those courts as was done by Judge Adams in restraining the Wabash employes from striking in St. Louis. The Republicans moved to refer the resolution to the committee on federal relations, and this carried, when a motion to reconsider was made and carried on a roll call, when the Democrats, with the exception of Mr. Selph, of St. Louis, voted for it. The resolution was then adopted by a good vote. Below is the resolution:

"Resolved, That this House deprecates the tendency of the times towards government by injunction as exemplified in the recent sweeping order of Judge Elmer B. Adams of the Federal Circuit Court in St. Louis, who has restrained by injunction the officers of the railway unions in the pending controversy with the Wabash Railway over the wage scale."

Iron, Steel and Tin Workers' Amalgamated Journal (Pittsburg, Pa.).

The injunction evil is becoming unbearable. How long will the working people suffer such judicial outrages to be perpetrated upon them, divesting them of every right guaranteed by the Constitution of the country? The sweeping in-

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junction issued by Judge Adams restraining the men on the Wabash Railroad is undoubtedly the most shamefaced proceeding in the name of law that was ever practiced on a people that claim to be free and independent. What a mockery of liberty! The subjects of the Russian czar could not be treated to a greater indignity.

Lincoln (Neb.) Star.

Attempts are being made to tone down the extraordinary though not necessarily unsound injunction issued by Judge Adams against the promoters of the Wabash strike. The Star does not consider itself competent to review the injunction and pass judgment upon it from a purely legal standpoint, but we do feel competent to state that the injunction certainly forbids a strike, that it was intended to serve that purpose, and that it has had that effect.

Editors with a legal turn of mind have worn their pencils away attempting to show that the injunction applies only to persons who are not employed by the Wabash. Technically speaking, this is true, as the injunction was granted against the persons named in the application, but the injunction itself upholds the rights of courts to forbid one person not only to coerce or intimidate a man into quitting his labors, but to request or induce him to do so. Certainly if an officer of the labor union whose duty is to issue orders or requests can be enjoined, there is no question but that any member of the union can be so enjoined, especially in view of the fact that as soon as one man strikes he ceases to be an employe and becomes nothing more nor less than a servant of the union in the exact position occupied by the gentlemen who have just been ordered not to interfere in the Wabash dispute.

It is apparent, then, that the Adams injunction forbids the man who has ceased working to endeavor to induce a fellow worker to follow his example. The Star does not feel disposed to pass judgment upon the soundness of this doctrine, but deems it well that the real meaning and purpose of the injunction should be kept in sight so that when Judge Adams' opinion has been weighed and measured by other jurists and either accepted or rejected we will know exactly what is meant by that acceptance or rejection.

To the layman it would seem that man has an inalienable right to plead with his brother to do any legal act, and it must be conceded that leaving the employ of a company or individual is not illegal. But along the same line it might be said with equal force that man has the God-given privilege of conducting his business solely with regard to his own interests, and that associations of men and capital have the same right. The latter prerogative has been disputed repeatedly, and the Adams injunction disputes the former. In the courts and in legislative councils public policy is the overshadowing consideration. Associations of capital in restraint of trade or to enhance values have been found to work a detriment to the public welfare, and upon that broad ground have been restrained both by statute and court mandate. Apparently basing his decision upon the same principle, Judge Adams has declared an attempt to corner and control the labor market or any considerable portion of it to be in conflict with the rights and interests of the public. To test the soundness of this decision the best efforts of court and counsel will be applied, and upon the ultimate verdict rests the future of union labor in this country.

Chicago (Ill.) Chronicle.

The esteemed Kansas City Journal makes a brave effort to defend government by injunction as practiced by Judge Adams at St. Louis in the Wabash case by declaring that the trainmen were not ordered to remain at work—the officers of their organizations were merely commanded not to advise nor to persuade them to quit work.

This will do very well, indeed, for a primary lesson is casuistry.

In point of fact the injunction has prevented the Wabash employes from quitting work, for they can not very well engage in the strike which they contemplated without the advice and persuasion of their leaders.

The men have shown a most commendable spirit in obeying the order of the court, unjust and dangerous as it appears to be, and in taking steps to secure its modification. Strikes are bad, but there are things that are worse, as, for instance, judicial oppression and popular disrespect for the courts.

There are two ways in which the mis use of the writ of injunction may be checked. One of these, and the better one, is to procure legislation by Congress on the subject. The other is to challenge some high-flying life officeholding federal judge with a bill of impeachment.

The Outlook.

The question raised by this injunction —and so far as we know it has never been legally decided—is whether men not in the employ of an interstate railroad may lawfully order, counsel or induce the employes of that railroad to strike. Will the courts forbid such counsel or order to be given by one who has no relation to the corporation, on the ground that this is an unwarrantable interference either with the rights of the railroad or with the commerce of the country? On the one hand, it may be contended that public interest requires that controversies between a railroad corporation and its employes should be settled by them without any outside interference. On the other, that trainmen and locomotive firemen have a right to ask counsel wherever they can get it; that they have a right to employ a broker or attorney, put their labor into his hands, leave him to negotiate their contracts for them, and determine in their place and stead the terms and conditions on which that labor shall con-

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tinue. It appears to us clearly that this is their right; that the courts can no more legally forbid employes from following the counsel of a paid officer of their brotherhood that it can forbid the corporation from following the counsel of their paid attorney; that, if the trainmen and locomotive firemen are to be free to make contracts at all, they must be free to do so through agents not in the employ of the corporation, and this for two reasons: first, because an agent in the employ of the corporation would always be liable to have a divided interest; second, because the nature of their employment is such as to keep them occupied daily and hourly upon the road, and so prevent them from getting together and consulting as to their common interests, or even studying the situation, acquainting themselves with the facts, and coming to any just and reasonable judgment as to the right conditions of a contract between them and their employer. The Outlook hopes that this case may be carried up to the Supreme Court of the United States, and in such a form, and so divested of all side issues, as to present clearly the question of the right of employes, in their negotiations with their employers, to act through the officers of their brotherhood or trades-union.

Carlinville (Ill.) Democrat.

There are two sides to the Wabash injunction suit, and one of them does not look so bad for the trainmen. A high legal authority declares that the position taken by Judge Adams is that railroad employes are to be regarded by the United States courts as employes of the United States government and that therefore the men will be able to claim the right to enjoin railroads from discharging them except for cause. If the men can be enjoined from striking and the roads enjoined from discharging employes except for good cause the relations between the two will be rather tightly fitted.

Sioux City (Ia.) Journal.

The Dubuque Times is inclined to uphold Judge Adams' injunction in the Wabash case and attempts to draw a parallel between the St. Louis injunction and that recently issued by Judge Grosscup in Chicago against the meat packers. Its argument is that if the Chicago meat trust can be enjoined from acts in restraint of trade the same recourse in permissible against the St. Louis labor trust. In the abstract the logic of the Times is good. A labor trust conspiring to restrain trade is just as reprehensible as a manufacturers' trust engaged in the same attempt, and if the law can be successfully invoked as a remedy in the one case it should be equally available in the other. But the Journal is not prepared to admit the parellel between the Chicago and St. Louis cases.

Judge Grosscup's injunction restrained the packers only from performing acts expressly prohibited by law. They were forbidden to accept rebates from railways, to enter into agreements by which they might obtain abnormal prices for their products and to maintain contracts by which they were able to force cattle owners to sell at less than a normal price. Concerted action along these lines was held to constitute a conspiracy in restraint of interstate trade, and such conspiracies being prohibited by law, the injunction seems proper enough, as injunctions go.

Now as to the St. Louis case. The officers of the railway men's organizations were restrained from "in any way or manner coercing, persuading, inducing or otherwise causing, directly or indirectly, the employes of said Wabash Railway to strike or quit the service of the company." The practical effect of this injunction was to prevent the officers from ordering a strike already decided on by the members of the organizations. Without such executive order the members could not quit work in a body without violating their obligations to the unions. Hence the indirect effect of the injunction was to prevent the men from quitting work.

In trying to ascertain the merits of the St. Louis case, the vital question is: Would the officers of the union have been violating any law in persuading the members of the organization to quit work rather than continue at work under conditions which were not satisfactory? Would any law have been violated if the officers issued an order to quit work after the members of the organization had authorized the issuance of such order? The only law which could possibly apply to the case would be that prohibiting conspiracy in restraint of interstate trade. Could the concerted action of the employes of the Wabash in agreeing to quit work be construed as such a conspiracy? Could the advice to quit rather than work under uncongenial conditions be construed as part of the conspiracy? Perhaps there are some who will answer these questions in the affirmative. In that event the Dubuque contention is sustained. For its part, the Journal is inclined to think otherwise.

An individual, unless restrained by contract, has the right to quit work to better his condition, or try to better it. Individuals have the moral and legal right to associate themselves into organizations with the view of improving their condition. Why deny to the organization as a whole the right which is granted to each unit of the organization? Suppose the employes had been allowed to strike as contemplated? The Wabash Railway would have been left free to carry on its interstate traffic just as soon as it could secure employes who were willing to work under the conditions offered. And in this connection it will be borne in mind that the two labor organizations in question had no practical monopoly of the labor market as the packers had of the meat market. If the strike produced a temporary interruption of transportation on the Wabash, who would be responsible for it? Would it be the men who refused to work under certain conditions or the

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railway managers who refused to grant certain other conditions? Judge Adams seems to have assumed that the men would be at fault, but wherein is his justification for that assumption? Instead of protecting interstate traffic facilities by enjoining the men from striking, why should he not assume that the demands of the latter were reasonable and enjoin the company from refusing to grant them, thereby placing the burden of responsibility on the company?

This newspaper has had little sympathy with the outcry against "government by injunction" so loudly voiced in connection with other labor controversies. In nearly all such cases the strikers or their sympathizers were merely enjoined from perpetrating illegal acts of interference with the employers' business after the strike had been inaugurated. But an injunction which keeps one man, or several hundred men, at work unwillingly is another matter. Organized labor directly engaged in interstate traffic may as well prepare to go out of business if Judge Adams' principle shall be declared good law.

Palmyra (Mo.) Herald.

Judge Elmer B. Adams, who issued the injunction against the Wabash strikers, claims to be a Democrat, and the Democratic party must therefore bear the odium attaching to his high-handed and unprecedented action. As a matter of fact, Judge Adams has not voted the Democratic ticket for the past eight years. It is high time that people who do not vote the Democratic ticket should cease to style themselves Democrats. The party has enough to answer for without assuming responsibility for such characters as Judge Adams.

Toledo (O.) Times.

Following the Wabash precedent, hereafter no strike will be complete without its injunction.

Southerland (Neb.) Free Lance.

The Circuit Court has issued an injunction against the leaders of the strike. Just what the purposes of the injunction are is hard to learn. There has been no overt act or destruction of property on the part of the strikers. The court could scarcely enjoin the men from the common, everyday right to quit work, singly or in a body. The courts become ridiculous in their haste to obey the behests of the corporations.

Elizabeth (N. J.) Times.

The injunction in this case has been applied to an extent far beyond the limits of reason and justice, for, if it should stand, the only weapon of defense that can be used by the workingman will have been taken from him, and he will have no means of redress against the oppressions of inconsiderate, selfish employers. We do not see what authority the courts can possibly have in forcing a man, or a number of men, to work when they do not want to do so. Besides, there is really no method of punishing those who refuse to obey an injunction of this kind, inasmuch as it will be quite impossible to prove that they are in contempt of court.

Dubuque (Ia.) Telegraph Herald.

Authority for the injunction issued by Judge Adams is conferred—rather it is the railway's contention that it is conferred—by the Sherman anti-trust law and the interstate commerce laws. The statutes forbid combinations in restraint of trade in the cases of corporations engaged in interstate traffic, in which classification railways are embraced. It was the impression, as has been pointed out in these columns before, that these laws were directed against industrial trusts and railroads which discriminated between shippers and sections of country. They were passed in deference to the popular demand that the railways and the trusts be restricted. It was never the purpose to curtail the right of men to strike yet they have been employed effectively only against labor unions. Instead of restricting the aggressions of capital they have armed capital with a club to beat the workingmen.

It is for the court to determine authority to enjoin a strike. If it has the power and if it has the Republican party is responsible—then the sooner it is divested of that power, the securer will be our personal liberties.

The rank injustice of such laws is palpable. A railroad company is an organization of persons having interest in the railway. The unions enjoined are organizations of the employes of the railroad. According to the St. Louis principle, it is all right for the railway to refuse as an organization, a corporation, to pay its employes higher wages, but it is wrong when these employes, formed in a union, shall, as an organization, refuse to accept these wages and go on strike. If it shall be contended that not the unions but their officers are the persons enjoined, the principle is still unaltered. It is still proper, as viewed by the Journal, to enjoin these union leaders and not enjoin the officers of the railway.

It is a denial of personal liberty to an individual to restrain him by court mandate from "persuading" another to quit work. It is an abridgment of his right to free speech. Yet it is possible that the Sherman anti-trust law authorizes this abridgment. If this shall prove to be the case, the Republican party must answer not alone to trade unionists but to all lovers of personal liberty as well.

Fairmount (Minn.) Sentinel.

"Labor leaders say that if the temporary injunction is made permanent a death blow will be struck at labor organizations in the United States. We see no reason to believe that this is an over statement of the case. Labor organizations will scarcely continue to exist if

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they are deprived of the aggressive power of combination. Organization that can not threaten strikes and realize them will be in a poor position to advance the interests of their members in the struggle with organized capital.

"If the injunction in this case shall be made permanent it will be something more than a blow to labor unions; it will be a blow at rights of every individual. It will establish such a monstrous precedent for the extension of legislation and government by injunction that no man will be able to feel that he is safe from the tyrannical reach of some arbitrary judge.

"Whatever the decision may be as to the permanent injunction, the injustice of the temporary injunction alone is so great and so obvious as to suggest the need of some legislation that will plainly define the limits within which courts may issue injunctions. At present they seem to be able to enjoin anybody, upon complaint, for doing anything."—Minneapolis Journal.

While the above is all true and well stated it sounds strange coming from a Republican newspaper, which only a few years ago was among those who shouted themselves hoarse yelling "free riot!" all because the Democratic party openly arrayed itself against government by injunction. The Republican party is gradually and without appearing to know it, accepting—or pretending to accept—the Kansas City platform.

New York Commercial Advertiser.

We reproduce again this extract from Edward M. Shepard's speech in Chicago on Monday for the purpose of comparing it with other Democratic utterances upon the same subject:

"Can anything involve more danger to conservative interests than un-American interference with personal liberty, such as was illustrated by the injunction order granted in St. Louis the other day by a federal judge of ability and character? The order forbade the brotherhoods of Railway Trainmen and Locomotive Firemen from 'persuading' or 'inducing' certain brakemen, switchmen and firemen to quit the service of the Wabash Railway Company. No doubt the judge, when he forbade 'persuasion,' believed there was law for the prohibition. But if, upon the hearing, it shall be found so, then so much law ought to be forthwith repealed. Is it anything less than calamitous that in the armory of law, weapons should be found to restrain that kind of freedom, when thus far the armory of law has been racked in vain for weapons equal to the prevention of combinations expressly forbidden by statute?"

As we have said, this St. Louis injunction is based upon the same law that the Cleveland-Olney injunction of 1894, applying to the strikers in the Chicago riots, was based. Bryan said of the 1894 injunction, in a speech in Chicago on Labor Day in September, 1900:

"The attempt to use the injunction of a court to deprive the laboring man of trial by jury should alarm all our people, for, while the wage earner is the first to feel its effects, the principle which underlies government by injunction is so far reaching that no one can hope to escape ultimately. The meanest thief and the most brutal murderer are entitled to trial by jury. Why should this right be denied the laboring man?"

The Supreme Court of the United States upheld this "use of the injunction," and Bryan was well aware of that fact when he made his speech. He had, indeed, caused to be inserted in his national Democratic platform of 1896 a plank which called for a reorganization of the Supreme Court because of its decision. In speaking in the national convention when the plank was under consideration, David B. Hill said:

"Was it wise to assail the Supreme Court of your country? Will some one tell me what that clause means in this platform? If you meant what you said and said what you meant? Let some one explain that provision. That provision, if it means anything, means that it is the duty of Congress to reconstruct the Supreme Court of the country. It means the adding of additional members to that court, or putting some out of office, or reconstructing the whole court. I will not follow any such revolutionary step as that."

Bourke Cockran, in the campaign of 1896, in his famous Madison Square Garden speech against Bryan, said of the same plank:

"It is a proposal not to amend the constitution in the ordinary way prescribed by that instrument itself, but to pack the court, to reorganize it so that it will pronounce those laws to be constitutional which the constitution itself condemns; a proposal to make the courts of law instruments of lawlessness; to violate that sacred pact between the states on which the security of this nation rests; to profane the temple erected for its protection by the hands of false priests who, though sworn to defend it, will be appointed to destroy it."

The plank was inserted unchanged in the Democratic platform of 1900, and to this day Bryan has at every opportunity denounced "government by injunction" in terms like those quoted above. Is Shepard getting into harmony with him? In what respect do the utterances of the two men differ?

Boston (Mass.) Commercial Bulletin.

The right of labor not only to combine but to strike as well is now conceded by practically all communities of advanced economic status. Threats, violence and other malignant forms of social unrest are, of course, severely censured and enjoined; but as these are only incidental concomitants of a larger movement, human in its aims, the history of our country affords no instance of the denial of the right to strike where it has been employed for the purpose of securing legitimate and reasonable concessions from capital. This tolerance is based on the assumption that

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labor as an element of production possesses aims fully as important and commendable as those claimed by capital. No other assumption could obtain in a society of superior economic training, let alone a democratic community.

But now, for the first time in the history of the country, this right has been nullified by an injunction issued in St. Louis by Judge Adams of the United States Circuit Court, which commands the employes of the Wabash Railroad absolutely to desist from in any way ordering, persuading or inducing directly or indirectly the employes of the said road to strike or quit its service. Heretofore injunctions have been issued only after the inauguration of the strike and confined themselves to the prohibition or molestattion, the destruction of property and the like, wholly justifiable precautions. But intended as this is to squelch even the attempt to institute an orderly strike, the Wabash injunction has no foundation in ethics or in history.

A storm of adverse criticism has naturally been aroused in which Judge Tuley of the Appellate Court of Illinois and former Chief Justice Springer of the United States Court of Appeals in the Indian Territory have both vehemently joined. The right to strike, they contend, is perfectly lawful and there is no precedent in our judicial history by which to justify Adams' injunction. "The day may come," says Tuley, "in the not distant future when the working classes will have political control and will appoint judges who will also issue writs of injunction—in their favor. I see no reason why a writ of injunction should not as well issue against a railroad, enjoining it from discharging an employe or from failing to pay such employes a certain fixed rate of wages. The judges are approaching a condition in which the governing power will be exercised by the judges with the executives and legislators as mere figureheads."

The vital problem which the statesmen of today have on their hands is that of the relation of labor to capital. It must be approached in a calm, unprejudiced spirit, with a sensitive apprehension of the aspirations of the former. A temperament such as that which prompted Judge Adams to take this unfortunate step is inevitably calculated to foster and exacerbate the present social unrest and postpone the final solution.

Railroad Trainmen's Journal.

Not since the time that Judge Jenkins made his sweeping order against the organizations have we met with anything so drastic at the hands of the courts. There is little difference between the two injunctions and their purposes were the same, to prevent a supposed strike on the ground that the railways are common carriers and can not be subjected to a strike. If true, this means that a railway employe is a slave to his employer and that he is denied the power to exercise his constitutional right of deciding whether he will work or not.

As the writer is among the "and all others" who are under the ban of the court, no adverse comment against the injunction can be made because it could be regarded as contempt of court. The Journal has no desire to be regarded as holding the court's order in contempt.

The attitude of the brotherhoods in accepting the order of the court and at once suspending its operations on the Wabash, pending the settlement of the injunction, has been the means of bringing to their defense thousands who heretofore felt little regard for labor organization because in their opinion it was composed of a law breaking, ignorant mass of ungovernable men whose sole ambition was to embarass the purposes of the employer. The injunction, in some respects, is one of the best things that has happened to the organizations. While it has prevented the exercise of what law, precedent and decision have declared to be purely within our right, this very fact of itself will do much to assist in removing the absolute authority of the courts to interfere at the request of any one who desires to use the injunction to evade the law.

As the complaint was presented the injunction might find some excuse if none of the facts of the other side of the case were obtainable to disprove it.

The injunction will also lend its influence to secure the enactment of an anti-injunction law that will prevent further occurrences of this nature.

The members of the brotherhoods are law abiding citizens, they are intelligent and good workmen or they would not be in their positions with the Wabash. They have not indulged in any expressions of ill will or disrespect toward either the court or Mr. Ramsey. They have accepted the order of the court in the proper spirit and intend to carry the matter to the end in accord with the same spirit of fairness and regard for the law that has always characterized their efforts as organizations.

Springfield (Mo.) Democrat.

The Wabash says its employes have conspired to force a recognition of the union. They have possibly violated the Spanish law in force in our colonies also which prohibits conspiracies to raise wages.

Cigar Makers' Journal.

The illegal, unprecedented and outrageous injunction issued by JudgeAdams in the Wabash difficulty, while bad law and unwarranted, if violated by the railway organizations, would probably have been followed by a suit for damages similar to the Taff Vale affair. Who knows but what the railway company expected the injunction to be violated? The situation is serious enough to warrant us in urging all organizations and all members thereof to close up the ranks and carefully guard every step that is taken. All trade union laws and rules should be strictly obeyed and complied with in the entirety. Recent history shows that some of the or-

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ganizations contain paid spies, whose mission is to secure evidence upon which to base charges against the union. Be on your guard against the wild and woolly fellow who counsels violence and drastic measures. Let cool judgment and wise counsel prevail on all occasions. Rally around the cool, conservative members who have experience and who counsel moderation and conservative action. Don't let anybody lead you into a false position or one that you can not maintain. There is no use in getting excited or confused and being routed by our enemies, be they secret or open ones. Our unions are all right and with careful action and judicious management they will come out O. K. in the end. Under the circumstances the railway brotherhoods undoubtedly took the right stand in obeying the injunction, unjust as it was unlawful, notwithstanding, and testing the matter in the courts. Their action took a lot of thunder away from those who would have been greatly pleased if they had acted otherwise. If the injunction stands without modification it will at least have the effect of uniting in one solid phalanx the entire labor forces of this country in opposition to government by injunction.

***National Labor Tribune* (*Pittsburg, Pa.*).**

If this injunction stands and is finally written into the laws of our country, it is difficult to conceive of the possibility of fixing any limit to "government by injunction." There have been other injunctions granted by the courts in railway strikes, but none so sweeping and far-reaching as this. Judge Adams is a monstrosity, as a product of republican institutions. That he or any other intelligent person should imagine the people of this country, without respect to class, will permit themselves to be governed in any such manner as his astounding assumption suggests, is an eccentricity that there is no accounting for. No one but a fool would wish to see the issue that this reckless judge has raised pushed to its logical conclusion. Business men are condemning him as strongly as are the so-called "labor agitators." If he is prudent, he will modify his order; if he is as unfit to sit on the bench as now seems, he will persist.

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Law Citations in Wabash Case.

Mr. John H. Murphy, General Counsel of the Brotherhood of Locomotive Firemen, had the honor of preparing the "Brief of Defendants" in the Wabash injunction proceedings, and the reasonings of Judge Adams in dissolving the injunction bears proof of the effectiveness of the citations of Mr. Murphy. The history of this case would be incomplete without publishing this brief in its entirety, so it is herewith reproduced in full:

IN THE CIRCUIT COURT OF THE UNITED STATES FOR THE EASTERN DIVISION OF THE EASTERN DISTRICT OF MISSOURI.

Wabash Railroad Company, Plaintiff,
vs.
John J. Hannahan et al., Defendants.
No. 4532. In Equity.

Brief of Defendants.

An ex parte injunction was granted against the defendants in the above entitled cause on the 3d day of March, 1903. So sweeping and broad is it that the employes of the Wabash Railroad Company may not withdraw their service from the company by preconcerted arrangement, even though they are refused wages and conditions of employment by the company which they had sought to obtain and without which they were not satisfied to render service. It also forbids the defendants, although the selected representatives of the employes, to advise with them or encourage them to strike, even if that encouragement is only to the effect and extent that if the employes do strike their Brotherhoods wil render them pecuniary assistance.

The first three grounds assigned in defendants' motion to dissolve, namely, "that the injunction was improvidently granted," "that there is no equity in the bill," "and that the charges of conspiracy contained in the bill were unfounded and wholly disproved by the affidavits accompanying the motion," are so interlinked and are so carefully treated by the authorities which we cite that we have considered them all together in this brief.

In the bill of complaint adjectives in large numbers are recklessly used with the intent, presumably, by the force of their ominous and portentous meaning, to overwhelm the mind and confuse the issues in the case and cloud the judgment of the court, for all through the bill are found such terms and phrases as "unlawful and malicious conspiracy," and "contriving to injure," "unlawful conspiracy and combination," "malicious purpose and intimidation," "inflammatory speeches," "maliciously inducing and compelling," "combining and confederating together," and the like.

Upon this subject Judge Caldwell has tersely said:

"They are psychological phrases which indicate specious intentions, and among them are high sounding and portentous terms from which much may be implied or imagined, instead of using plain and common words which accurately describe the case and leave nothing to be implied or imagined. If an act done or threat-

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ened to be done is lawful, it can not be made unlawful by giving it a name which imports an illegal act. Names are not things. It is the thing done or threatened to be done that determines the quality of the act, and this quality is not changed by applying to the act an opprobrious name or epithet; unless the definition of the words fits the act, the definition is false as applied to the act."

Hopkins v. Oxley Stave Co., 83 Fed. Rep., at p. 944.

See also opinion of Justice Holmes in Vegelahn v. Gunter (Mass.), 44 N. E. Rep. 1079.

What the Facts Are.

The facts in this case are, as distinctly shown by the answer of the defendants, the affidavits filed in support thereof, and all the correspondence between the defendants and the officers of the complainant company, that about all of its trainmen, switchmen and firemen were desirous of obtaining a schedule of wages, in most instances an advance over that which they had been receiving, as well as the adoption of certain rules which would govern their relations with the company as employes. To the end that their wishes might be accomplished, they sent representatives selected from among themselves to St. Louis to confer upon the subject with the management. At first the president of the complainant company would not meet them, but did so later, and for months kept the committee waiting. He finally refused to grant a rate of wages or to adopt rules which were satisfactory. A statement of all the facts were submitted by the committee to those whom they represented, and the latter by their votes expressed their purpose of withdrawing from the service of the Wabash Company unless it immediately conceded the wages and rules that had been previously presented to the company.

Not a Single Element of Unlawfulness.

In all the proceedings and steps taken, as the evidence clearly shows, none of the defendants went beyond legal bounds. In fact, they did not go as far as they might have gone, for, as a matter of law, they might, under the circumstances, have advised and urged the men whom they represented to withdraw from the service of the company. But in all the evidence it is clear that they did not even seek to influence the will of any employes engaged in the engine or train service upon the system.

Thomas vs. Cincinnati, N. O & T. P. Co., 62 Fed. Rep. 319.

Charges of Intimidation, Etc.

The charges of intimidation or compelling the employes engaged in the engine and train service to do anything against their will or judgment is so apparently without even the slightest foundation that it seems as if it should be unnecessary for the defendants to deny it, because the circumstances and conditions existing in this case absolutely disproves the charge. It must be borne in mind that the complainant sets forth in its bill that the employes operate upon its lines in seven different States, as well as the Dominion of Canada. It is fair to assume, then, that the lines of the company extend over many thousands of miles of territory, and that the employes are all outside of the city of St. Louis, except a small minority. This being true, how could these defendants in St. Louis compel or intimidate or unduly influence an employe in New York, in Michigan, in Ohio, or in any of the other places, against his own judgment or will?

The work in the engine and train service is one of the most exacting of any labors in great industrial undertakings. Many things occur daily in the service which not only call for the exercise of the highest faculties of the mind, but also for the exercise of the most daring courage, even to the sacrifice of the life of the employe in order that other lives may be saved, as well as the property of the employer, and for complainant to attempt to make it appear that any committee of employes in St. Louis could and is coercing all or any number of these employes, insults the manhood of each of them, misleads the court and puts complainant in such a ridiculously absurd position that it does neither justice to its employes nor credit to the common knowledge which its officers possess.

The Employes are Not Complaining.

At what point are the employes complaining of ill-treatment, of being coerced and the like, at the hands of any of the defendants? In the case of Holden vs. Hardy, the employer bewailed the injurious effects of the law upon the employe and was sharply rebuked by Justice Brown, who used the following language:

"It may not be improper to suggest in this connection that although the prosecution in this case was against the employer of labor, who apparently under the statute is the only one liable, his defense is not so much that his right to contract has been infringed upon, but that the act works a peculiar hardship

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to his employes, whose right to labor as long as they please is alleged to be thereby violated. The argument would certainly come with better grace and greater cogency from the latter class."

See 169 U. S., p. 397.

Endeavoring to Obtain a Contract.

While the complainant's bill is permeated with charges of violations of contracts and the like, yet all the evidence shows that instead of the defendants and those for whom they were acting doing any act to break a contract, they were using their best efforts to have one made. It is but natural that railroad employes should unite for the purpose of obtaining a specific contract with their employer, and in the event a railroad company refused to deal with them for such a purpose, to withdraw from its service.

Changed Conditions.

Scarcely fifty years ago nearly every family manufactured a large portion of the things needed. The wool was sheared from the sheep and was put through the various processes by the family until garments were made from it. The garments, of course, were crude, and there are perhaps few if any who would now wear them. Most male individuals could work at several trades, such as carpentering, blacksmithing, shoemaking, and the like. About all could drive a stage coach, which was the common mode of conveyance and transportation. The crude work done by those people would not now be at all acceptable. An individual no better skilled than they were could not now find employment in any of the trades. At present all men are forced to become specialists in some branch of labor. So exacting, absorbing and engrossing is the work of engine and train men, that they must devote all of their time to their work in order to be successful and give satisfaction. For instance, very few engineers have the ability to go into the machine shop and there do the work of a machinist. Likewise, very few machinists are able to run a locomotive. The telegraph operator generally knows nothing about the engine, and the engineman is not able to manipulate the telegraph instrument so as to receive and send messages. Now, if the engine and trainmen give up all their time to promoting the interests of the company and thus cut themselves off from the chance to become qualified in some other industrial pursuit, why is it not proper and necessary for them to obtain a contract governing their relations with their employer concerning wages, terms of employment, promotions, and the like, the same as any prudent business man would do under similar circumstances? And because these employes are endeavoring to do only those things that the present conditions of society force them to do, the complainant calls it a conspiracy. Complainant does all of its business through agents and representatives, and therefore is hardly in a position to object to others doing that which it does and claims the right to do. While its employes are seeking an increase of wages, its representatives, no doubt, are planning to avoid paying the amount. But in neither of these acts is there any element of conspiracy, because a conspiracy in law imports a combination between two or more persons to accomplish an object criminal or unlawful in itself, or to resort to a criminal or unlawful means to the accomplishment of an object not unlawful nor criminal in itself.

See 6 Am. & Eng. Encyc. of Law, 2d ed., p. 838.

Not Unlawful to Agree to Raise Wages Nor Engage in a Strike for that Purpose.

"In this country it is not unlawful for employes to associate, consult and confer together with a view to maintain or increase their wages by lawful and peaceable means, any more than it is unlawful for the receivers to consult and confer together for the purpose of reducing their wages. A corporation is organized capital; it is capital consisting of money and property. Organized labor is organized capital; its capital consisting of brains and muscle. What it is lawful for one to do it is lawful for the other to do. If it is lawful for the stockholders and officers of a corporation to associate together for the purpose of reducing wages of its employes, or devising other means for making their investments more profitable, it is equally lawful for organized labor to associate, consult and confer together with the view to maintain or increase wages."

Judge Caldwell in Ames v. Union Pac. Ry. Co., 62 Fed. Rep. at p. 14.

"The receivers were the first to break the contract between the court and its employers, but if the converse had been the case, the court could not have directed or enjoined the men to continue in its service. Specific performance of a contract to render personal service can not be enforced by injunction, by pains and penalties for a breach of such a contract. * * *

"The court is asked to apply to the employes in its service the principles of the English statutes which by the imposition of heavy pains and penalties forced employes to work at fixed wages and made it an offense to seek to increase

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them or quit the service of their employer. The period of compulsory personal service, save as a punishment for crime, has passed in this country. The only redress the law affords is a civil action for damages."

Id.

In discussing the rights and duties of employes upon a railroad in the hands of a receiver, Judge Taft said:

"Herein is found the difference between an act of the employes of the complainant company in combining to withhold the benefits of their labor from it, and the acts of the employes of the defendant companies in combining to withhold their labor from them; that is, the difference between the strike and the 'boycott.' The one combination, so far as its character is shown in the evidence, is lawful, because it is for the lawful purpose of selling the labor of those engaged in it for the highest price obtainable and on the best terms."

See Toledo, etc., Ry. Co. v. Pennsylvania Ry. Co., 54 Fed. Rep at p. 738.

The case of United States v. Elliott is one that was instituted by the United States District Attorney to enjoin persons who were actually interfering with the movements of mail trains and traffic generally upon all the roads centering in St. Louis. The questions of wages or conditions of employment were not involved. In the opinion rendered, Judge Phillips said:

"In the recent case in Chicago in which P. M. Arthur was the intervenor in Arthur v. Oakes (63 Fed. Rep. 310), Mr. Justice Harlan, in reviewing the restraining order issued by Judge Jenkins, has very effectually met this objection (granting injunction to prevent criminal acts) and presented the law respecting unlawful conspiracies with a force and clearness to forever set this question at rest. It can not be out of place here to say that no public decision has perhaps been so much misunderstood or ignorantly or intentionally misrepresented and perverted as that of (Judge Jackson) the distinguished jurist. The opinion recognizes the right of the employes and labor organizations in the absence of contracts binding the employe to a given term of service, whenever they become dissatisfied with their employment or wages, to quit the service of the employer, either separately or collectively, and they have a right by a preagreement or preconcert of action to unite together for taking peaceable and lawful means to secure an increase of wages; to withdraw separately or in a body from the service of the employer, when dissatisfied. It is not competent for courts to interpose to restrain the right of volition, which is among the natural and inalienable rights of every citizen to work for whom he pleases; where he can get employment, and quit whenever he is dissatisfied therewith."

United States v. Elliott, 64 Fed. Rep., p. 32.

"When the employes of a railroad company that is in the hands of a receiver appointed by the court are dissatisfied with the wages paid by the receiver, they may abandon the employment, and by persuasion or agreement induce other employes to do the same."

Among the other observations in this case the court observed:

"Of course, employes must not use threats or violence nor overawe the employes remaining in the service."

Justice Brewer in United States v. Kane et al., 23 Fed. Rep. 748.

In the above case, Justice Brewer used the following illustration:

"Supposing Mr. Wheeler had two men employed * * * and he says to one of them: 'I will get along without your service, and I will do with the service of the other,' and one leaves. * * * Supposing the one that leaves goes to the one that has not left and says to him: 'Now look here; leave with me,' giving whatever reason he sees fit, whatever reason he can adduce, and the other one says: 'Well, I will leave,' and he leaves, because his co-laborer has persuaded him to leave—has urged him to leave; that is all right. Mr. Wheeler has nothing to say; he may think the reason that the one that is leaving has given to the one that he would like to have stayed is frivolous, not such as ought to induce him to leave, but that is those gentlemen's business. If the one whom he would like to have stay is inclined to go because his friend has urged him, has persuaded him, has induced him to leave, Mr. Wheeler can not say anything. That is the right of both these men—the one to make suggestions, give reasons, and the other to listen to them, and act upon them."

"It would be an invasion of one's natural liberty to compel him to work for or remain in the personal service of another. One who is placed under such restraint is in a condition of involuntary servitude—a condition which the supreme law of the land declares shall not exist in the United States, or any place subject to their jurisdiction."

Arthur v. Oakes, 63 Fed. Rep. 310.

"These employes having taken, first, service with the company, and afterwards with the receivers, under a general contract of employment, which did not limit the exercise of the right to quit the service, their peaceable co-operation as the result of friendly argument, persuasion or conference among themselves in asserting the right of each and all to refuse to further service under a schedule of reduced wages, would not have been illegal or criminal, although they may have acted in the firm belief and expectation that simultaneous quitting without notice would temporarily inconvenience the receivers and the public, if in good faith and peaceably they exercise the right of quitting the service, intending thereby only to better their condition, by securing such wages as they deemed just, but not to injure or interfere with the free

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action of others, and they can not be legally charged with any loss to the trust property resulting from their cessation of work in consequence of the refusal of the receivers to accede to terms upon which they were willing to remain in the service. Such loss under the circumstances stated is incidental to the situation and could not be attributed to the employes exercising their lawful rights in orderly ways, or to the receivers when, in good faith and in fidelity to the trust they declared a reduction of wages and thereby caused dissatisfaction among the employes and their withdrawal from the service."

From opinion of Justice Harlan in Arthur v. Oakes, 63 Fed. Rep. 311.

Hill's Annotated Law, Sec. 1893, which makes it a misdemeanor for one by force, threats or intimidation to prevent an employe from continuing or performing his work, does not make it unlawful for a trade union by resolution or order of its executive committee to require its members under pain of suspension or expulsion from the union to quit a person's employ because of his violation of a lawful rule of the union. (It was also held in this case that a union ordering a strike and using its influence to divert business from complainant did not entitle him to injunctive relief. Long Shore Printing & Publishing Co. v. Howell, 38 Pac. R. 547.)

"If it be true that workmen may combine with the view, among other things, to getting as much as they can for their labor, just as capital may combine with a view of getting the greatest possible return, it must be true that when combined they have the same liberty that combined capital has, to support their interests by arguments, persuasion and the bestowal or refusal of those advantages which they otherwise lawfully control."

Justice Holmes in Vegelahn v. Gunter, 44 N. E. Rep. 1081.

In the following cases the right of workingmen to combine and engage in a strike has been sustained:

"Neither a workingmen's association conducting and financially supporting a strike by its members, nor the president of such association who organizes and directs such strike, confers with its leaders, disburses the financial aid to its strikers and promises it to others striking, will be enjoined at a suit of the employer to restrain interference with engaged employes; neither having authorized, encouraged, known of, nor tacitly approved any acts of violence."

Cumberland Glass Mfg. Co. v. Glass Bottle Blowers' Assoc., etc., 46 Atl. Rep. 208.

"Where a labor union refuses to permit its members to work with fellow-servants who are members of a rival organization and notifies the employer of that fact and that a strike will be ordered unless such servants are discharged, with the intent to secure only the employment of approved workmen or to secure the exclusive employment of its members on their own terms, and the employes objected to are discharged, neither they nor the organization of which they are members have a right of action against the union, provided that no force is employed or unlawful act is committed."

National Protective Association of Steamfitters & Helpers v. Cumming, 170 N. Y. 315; 63 N. E. Rep. 369.

"It is not conspiracy for workmen to combine together, and by mutual agreement to refuse employment unless there has been brought about a satisfactory adjustment between the employers and themselves on the points in issue."

See Commonwealth v. Martin, 7 Pa. Dist. Rep. 219; 9 Kult. 69.

"It is not criminal conspiracy to agree or cause another's discharge by quitting work for a common employer, unless fraud, force or other illegal means are employed."

People v. Davis, 57 A. L. J. 170.

"Workmen dissatisfied with the wages received or having other grievances, may strike individually or as a union, without rendering themselves amenable to the law, and in furtherance of such purpose may speak and publish their reasons and grievances, and by argument, entreaty and other legitimate means, persuade others that their cause is just."

Cook v. Dolan, 6 Pa. Dist Reps. 523; Moyer v. Journeymen's Stonecutter Assn., 47 N. J. Eq. 519; 2 Atl. Rep. 492.

"Where there is no sufficient evidence of violence, force, intimidation or coercion, and the facts simply show that the parties complained of are persuading workmen still employed to quit their employment, and others about to accept employment not to do so, and that persuasion consisted of argumentation, personal appeals and inducements by way of payment of traveling expenses to other localities, an injunction will not be granted."

Johnson Harvester Co. v. Meinhardt et al., 60 How. Pr. 68;

Rogers v. Everets et al., 17 N. Y. Supp. 264.

"The frequent controversies between capital and labor forcibly remind us how fruitful the relation between employer and employe is of opportunities for the commission of acts injuring another. But notwithstanding all the confusion that has been produced by the introduction of doctrines allowing effect to 'intent' and 'combination,' we find no obstacle to the application of the same test as before. The doctrine applied now is that the existence of the relation to another, as employer or employe, justifies acts that are the natural incidents or outgrowth of such relation, whether or not done with the intent to injure the employer or employe."

Cook's Trade & Labor Combinations, Sec. 6.

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Other Cases in Which These Principles are Discussed.

"A large number of retail dealers formed a voluntary association, by which they mutually agreed that they would not deal with any manufacturer or wholesale dealer who should sell lumber directly to consumers, not dealers, at any point where any member of the association was carrying on a retail yard, and providing in their by-laws that whenever any wholesale dealer or manufacturer made any such sale, their secretary should notify all the members of the act. The plaintiff having made such a sale, the secretary threatened to send notice of the fact as provided in the by-laws to all the members of the association. Held, not actionable and no grounds for the injunction."

Bohn Mfg. Co. v. Hollis et al., 55 N. W. Rep. 1119;
Clemette v. Watson, 43 N. E. Rep. 337.
Also see:
National Association of Steamfitters and Helpers v. Cummings, 65 N. Y. Supp. 946.

"A person with or without reason may refuse to trade with another. So may ten or fifty persons refuse. An individual may advise his neighbor or friend not to trade with another neighbor; he may even command, when the command amounts only to earnest advice. It is not an unlawful interference with the trade of another to advise people not to deal with his competitor or to decline to do business with him, *nor is it unlawful to combine to raise the rate of wages.*"

Ulcry v. Chicago Live Stock Exchange, 54 Ill. App. 233.
See also:
Allen v. Flood, L. R. App. Cases 1;
Master Builders Assn. et al. v. Damascio, 63 Pac. Rep. 783.

"An employer is not entitled to an injunction against striking employes for inducing others by entreaty and persuasion to leave his employment, where no intimidation is used."

Reynolds et al. v. Everett et al., 39 N. E. Rep. 72;
Also:
Buchanan v. Kerr (Pa.), 28 Atl. Rep. 195;
Domenico v. Alaska Packing Assn., 112 Fed. Rep. 554.

May Have Officers and They May Authorize or Order a Strike.

"Now, it may be stated in the outset that the employes of the receivers have the right to organize into or join a labor union, which should take joint action as to the terms of employment. It is of benefit to them and to the public that laborers should unite in their common interests and for lawful purposes. They have labor to sell. If they stand together they are often, all of them, able to command better prices for their labor than when dealing singly with rich employers, because the necessities of a single employe may compel him to accept any terms offered to him. The accumulation of a fund for the support of those who feel that the wages offered are below market price is one of the legitimate purposes of such an organization. *They have a right to appoint officers who shall advise* them as to the course to be taken by them in their relation with their employer. They may unite with other unions. The officers they appoint, or any other persons to whom they choose to listen, may advise them as to the proper course to be taken by them in regard to their employment, or if they choose to repose such authority in any one, may order them on pain of expulsion from their union, to peaceably leave the employment of their employer, because any of the terms of their employment are unsatisfactory."

Thomas v. Cincinnati N. O. & T. P. Co., 67 Fed. Rep. p. 819.

To the same effect, see Judge Grosscup's charge to grand jury, 62 Fed. Rep. p. 831.

"An Act to Regulate Commerce."

Complainant encircles itself by the interstate commerce act, and in its fancied security will not give its employes the compensation they wish for their services, and contends that for them to strike, even though dissatisfied, would be a violation of that law. Congress certainly never intended the act should extend to the employes of a common carrier seeking higher wages. If it did, this abridgment of their rights would make the act, so far as it applies to them while in the pursuit of such a purpose, unconstitutional, null and void. It would violate Article XIII, Section 1, of the amendments to the Constitution of the United States. If it is sought by the act to prevent them from corresponding, arguing and using other lawful means to induce all to act concertedly together for any lawful purpose, then it would be unconstitutional and void as violating Article I of the amendments to the Constitution of the United States. In all of the decisions rendered by any of the federal courts, we have not been able to find one that intimates that the interstate commerce act abridges the rights of the employes of a common carrier with reference to the question of wages and conditions of employment. But, on the contrary, the doctrine is clearly enunciated that they may strike to enforce their rights in respect to these things.

See Ames v. Union Pacific Ry. Co., 62 Fed. Rep. 7;
Arthur v. Oakes, 63 Fed. Rep. 310;
Thomas v. Cin. N. O. & T. P. Co., 62 Fed. Rep. 819.

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The United States Supreme Court Decision.

If, however, there was any doubt as to whether or not the interstate commerce act affected employes who are seeking a contract with a railroad company relating to their employment, that question is fully disposed of in Hopkins v. United States, 171 U. S. 595.

"The contract condemned by the statute (anti-trust law) is one whose direct and immediate effect is a restraint upon that kind of trade or commerce which is interstate."

Hopkins v. United States, p. 592.

"Many agreements such as this which relates only to facilities furnished commerce, or else to which it only in an indirect way applies, while possibly enhancing the cost of transporting the business, at the same time which we would not think as an agreement in restraint of interstate commerce."

Id.

In discussing this case the court says:

"For example, cattle when transported long distances by rail, require rest, food and water. To give them these accommodations, it is necessary to take them from the car and put them in pens or other places for their safe reception." (By way of illustration the court propounds several questions which it answers in the negative.) "Would an agreement among the land owners along the line not to lease their land for less than a certain sum be a contract within the statute as being in restraint of interstate commerce? Would it be such a contract, even if the lands, or some of them, were necessary for use in furnishing the cattle with suitable accommodations? Would an agreement between the dealers in corn at some station along the line of the road not to sell it below a certain price be covered by the act, because the cattle must have corn for food? *Or would an agreement among the men not to perform the services of watering the cattle for less than a certain compensation come within the restriction of the statute? Would an agreement among themselves by the locomotive engineers, firemen or trainmen engaged in the service of an interstate railroad* not to work for less than a certain named compensation be illegal, because the cost of transporting interstate commerce would be thereby enhanced? * * * In our opinion all of these questions should be answered in the negative."

Hopkins v. United States, 171 U. S. 593-4.

Employes in the Train Service Uniting.

From the affidavits on file it is made clear that the men in the engine and train service united together for the purpose of regulating the terms and conditions of their employment with the employer, for the reason that it conserves their mutual interests and promotes their individual safety. Statistics show that the employment in railroading is more dangerous to the life and limb of the employe than is war to the soldier. A signal given which through incompetency would not be interpreted correctly, causes the maiming or killing of an individual, or perhaps of many individuals. Carelessness, inexperience or incompetency, or inattention to duty of one employe puts in jeopardy the life and limb of a large number of his co-employes, and hence it is a duty of each to see, so far as he can lawfully do it, that all of his co-employes are treated fairly and compensated sufficiently to make it an object for competent men to stay in the service.

"The highest and best service can not be expected from men who are compelled to live in a state of pinch and want. * * * Intelligence, bodily vigor and contentment are wanting among men compelled to work for inadequate wages."

Judge Caldwell in Ames v. U. P. Ry. Co., 62 Fed. Rep. p. 16.

Besides the foregoing, the fact that employes do not stand on equality with their employes is another reason why it is in the interest of public policy that they should be permitted to unite.

"The individual laborer is completely at the mercy of the employer, if he can not combine with his fellows to maintain a standard of wages and control terms of the labor contract in other matters. Even then is there no real equality of conditions between employe and the employer. The individual employer who is prohibited from combining, has through his control of the materials of the productions and the immediate necessities of the workmen, the advantage over the members of labor organizations from which he selects his employes."

Tiedeman's State & Federal Control of Persons and Property, Vol. 1, p. 424.

Upon this subject Justice Brown has said:

"The legislators have also recognized the fact which the experience in many States have corroborated, that the proprietors of these establishments and their operatives do not stand upon an equality, and that their interests are to a certain extent conflicting. The former naturally desire to obtain as much labor as possible from their employes, while the latter are often induced by fear of discharge to conform to regulations which their judgment fairly exercised would pronounce detrimental to their health or strength. In other words, the proprietor lays down the rules and the laborers are practically constrained to obey them. In such a case, self-interest is often an unsafe guide." * * *

Holden v. Hardy, 169 U. S. p. 397.

Employes who are forbidden to correspond with each other and with their representatives and agents upon lawful matters, and are prevented from receiving

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and acting upon the advice of their representatives and agents, or those from whom they see fit to seek advice upon lawful matters, are denied the guaranty given by the Constitution of the United States, in that their freedom of speech, which includes writing or other means of communication, is abridged. Upon this subject the Supreme Court of Missouri has said in Marx & Haas Jeans Clothing Co. v. United Garment Workers of America, 168 Mo. 133; 67 S. W. E. P. 391:

"And in this connection it is to be constantly borne in mind that the principle is firmly rooted in equity jurisprudence that though there be no remedy at law, this does not necessarily and of itself give a court of equity jurisdiction to afford relief. The authority to enjoin finds no better harbor in the empty pocket of the poor man than in the full pocket of the rich man. And such authority to enjoin can have no existence in circumstances such as the present case presents, if the Constitution is to be obeyed.

"If these defendants are not to be permitted to tell the story of their wrongs, or, if you please, their supposed wrongs, by word of mouth or with pen or print, and to endeavor to persuade others to aid them by peaceable means, in securing redress for such wrongs, *what becomes of free speech, and what of personal liberty?* The fact that in exercising that freedom they thereby do plaintiff an actionable injury, such fact does not go a hair towards a diminution of their right of free speech, etc., for the exercise of which, if resulting in such injury, the Constitution makes them expressly responsible. But such responsibility is utterly incompatible with authority in a court of equity to prevent such responsibility from occurring."

(See pp. 149 and 150.)

Injunction Was Obtained Without Notice.

Equity Rule No. 55 requires that notice shall be given before an injunction is obtained. See Bates on Federal Equity Procedure, where he lays down the rule that notice must be given to the adverse party before an injunction against him can be obtained. See Sections 532, 533 and 534.

In conclusion, we desire to say that we believe this court will unbiasedly examine into the facts and fearlessly declare the law upon the issues. From our view of the law as applied to the facts, we feel amply justified in asking the court to dismiss the bill in said action and to dissolve the injunction heretofore granted against the defendants.

Making Deputy Sheriffs of Railroad Men.

In the Illinois legislature the following bill was introduced on February 19, 1903:

A BILL for an act making engineers, firemen, conductors and brakemen on all passenger and accommodation trains deputy sheriffs in all counties in this State, for the safe guarding of the public and against the holdup and wrecking of trains.

Section 1. Be it enacted by the People of the State of Illinois represented in the General Assembly, That all engineers, firemen, conductors and brakemen while on duty on or about any train for any railroad or railway corporation in this State, shall have the full power of deputy sheriffs and shall secure such appointment as such deputy from the county in which they reside as hereinafter provided.

Said engineers, firemen, conductors and brakemen shall apply to the sheriff of said county who shall appoint them in the manner prescribed by law.

Section 2. Said persons so appointed shall give a good and sufficient bond with approved security, in the penal sum of one thousand dollars ($1,000) for the faithful performance of their said duties as deputy sheriffs which said bonds shall be accepted and filed in the manner prescribed by law for other deputy sheriffs.

Section 3. It shall be the duty of such engineers, firemen, conductors and brakemen when in service for any railroad or railway company to arrest any person or persons around, about or on said train creating a disturbance or in the act of committing any crime.

Section 4. Any person so arrested by said deputy sheriffs may be delivered to any proper officer at any point on the line of said railroad or railway, and any person so arrested shall be tried in the county in which he was arrested in the manner prescribed by the statute for the commission of a criminal offense.

Section 5. It shall be the duty of all railroad and railway companies to have all engineers, firemen, conductors and brakemen on all passenger and accommodation trains get such appointments as deputy sheriffs in the counties through which they may pass.

Section 6. It shall be the duty of all sheriffs in all counties of this State to make such appointments without any cost and said appointment and bonds are to be filed with the proper officer and said deputy may be sworn in by any officer duly authorized to administer oaths in the county.

Section 7. Said deputy sheriff shall receive as his compensation the fees allowed other deputy sheriffs in similar cases.

Mr. George Goding, a member of the Board of Grand Trustees of the Brotherhood of Locomotive Firemen, who resides in Chicago, immediately detected the danger of such a bill should the men in train service become involved in industrial dis-

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putes. Meetings of railroad employes were held in Chicago which condemned the bill, and protests against its passage were sent to every member of the legislature.

Representative Samuelson, the author of the bill, now realizes the objectionable features, and has assured the railway employes of Illinois that it will not be passed.

Railway employes should not have the duties of peace officers to burden them in their regular work, and it is evident that with such a law in effect the courts would have an opportunity to send railroad men to jail if they should strike. If all of the men in train service were sworn officers of the law, and any of them should strike for an increase in wages, or against a reduction of wages, what a picnic the officials would have! They and the judges would have the fun of sending all the strikers to prison for deserting their posts as deputy sheriffs.

Mr. Goding, and those railway employes in Illinois through whose watchfulness this objectionable bill was defeated, deserve the thanks of all railway employes. From the nature of the bill it would appear that it was foreign to Mr. Samuelson's intentions to do an injustice to railway employes.

The Chicago Inter-Ocean says:

The labor men believe that the railroad companies are behind the bill, and as nothing has been printed about its introduction they think it is the intention to have it slipped through toward the close of the session without creating any comment.

A conference was held yesterday of officers of the four organizations affected by the bill, and it was unanimously condemned, and a delegation selected to go to Springfield and protest against its passage.

George Goding, of the Brotherhood of Locomotive Firemen, who presided at the meeting yesterday, declared that the railroad men emphatically protest against being compelled to do police duty against their wishes.

The text of the bill makes it mandatory for engineers, firemen, conductors and brakemen to become deputy sheriffs, by applying to the sheriff in the county in which they live, their papers to be recognized in all counties through which they pass while on duty. It also provides that the railroad companies shall be compelled to make their engineers, firemen, conductors and brakemen become deputy sheriffs.

Should the bill be enacted into law the union men believe their rights to strike are gone, as they would be placed in the position of public officials, and their refusal to work would be regarded as a neglect of duty and be punishable under the laws.

No such law is in existence in any other State in the country, and the union men believe that the pretext of guarding the public against holdups is a thinly-veiled disguise of the railroad companies to render labor organizations useless on the railroad lines within the State.

The fact that nothing has been made public of the bill has added to the suspicion of the labor men, and they propose to lose no time in sending a committee to Springfield to investigate. Assistance of other labor unions will be asked for to defeat the measure.

Court Decisions

Growth of Chancery Powers.

THE question of the abridgment of the powers of the courts in injunction matters, like all others, has two sides and a great deal can be said pro or con. The fact that the same question once before confronted English people, and its settlement resulted in depriving courts of chancery of many of their powers, shows us what was the weight of opinion then if we are not convinced what it is now.

In the April Harvard Law Review, Edwin S. Mack in an interesting article points out that the court of chancery in its earliest period designedly assumed jurisdiction to protect persons and property from violence. He says: "Politically it was a time of weak sovereigns; economically it was a period of transition and reformation. Manoral authority was breaking down and the power of municipalities and guilds was lessening. Highwaymen and rioters made trade and travel hazardous; powerful barons overawed the local courts. No sharp line was drawn between executive and judicial powers, and chancellors, probably without stopping to analyze in what capacity, exercised the royal prerogative delegated to them by Edward III to relieve the poor and the weak. Thus many of the suits of this period, though involving property rights, in fact were instituted to preserve the peace and prevent crime."

He goes on to show that this jurisdiction was unpopular; and "gradually, as the government became more stable and the courts of law more efficient, the need

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for a criminal equity lessened, and little by little the chancellor's criminal jurisdiction fell off, and finally toward the end of the fifteenth century its exercise ceased entirely, while the King's Council, the "Court of Star Chamber," failing to relinquish such jurisdiction, became so odious that it was abolished by statute in 1645.

The question having been thus settled once, what are we to say that it is again brought to the fore?

There is a science of the correspondences between things natural and things spiritual. It might be carried much farther or into smaller detail to advantage. One striking correspondence can be shown between the human body and our judicial system. A member of the body little used deteriorates or withers entirely. A member frequently exercised grows strong. As a matter of fact the disuse of the one member, necessitating thus greater reliance on the other, is the single cause for the effect in both. This same rule will hold true with reference to our judicial functions. The criminal branch of law has been defined as the functions which the State discharges as the guardian of order, preventing and punishing all injuries to itself and all disobedience to the rules it has laid down for the common good. No bill or petition was ever filed asking for an injunction against strikers which did not necessarily allege as a ground for the writ facts every one of which were ground for criminal injury. Why then was not resort had to that branch of our judiciary in which the machinery for the punishment or suppression of crime could be set in motion?

Again have we arrived at "a time of weak sovereigns;" "a period of transition and reformation?" It surely is true that one branch of judicial functions, that exercising criminal jurisdiction, is being little used and is becoming weak, if not withered, while the chancery branch is growing strong and exercising powers hardly thought of a generation ago.

That there is a distaste for criminal procedure, where another judicial branch holds out equal protection, can not be questioned. Is it from lack of confidence in its exercise, or is it already withered and dying? Be the complaint against a handful of striking laborers or against a gigantic trust, those supplicating for relief invariably seek it through the channels of equity, though the very allegations on which they base their prayer make perfect informations or indictments. As a result courts of equity have grown careless of their traditional limitations, and unless their power is curbed our real government, regulating every affair of life from muzzling dogs during hot weather to investigating steel trusts, will be referred to a master in chancery for a report.

While this function of the judiciary is growing strong, the same cause, whatever it is, is causing another to become weak. It is our police system and our criminal procedure. It is even intimated by Justice Brewer, of the United States Supreme Court, in quoting a leader of the Chicago strike, that that strike was broken, "not by the army and not by any other power, but simply and solely by the action of the United States courts in restraining us," that the chancery courts are stronger than the military arm of the government.

The tendency of chancery courts in the meantime is all in the direction of larger powers, the outline for the future being well stated by United States District Judge McPherson, of Nebraska, in the case of the Union Pacific Railroad Company vs. Ruef et al., 120 Fed. Rep. 102;

"Capital or labor may in one case or in another case dominate the other; but in the end right and justice will dominate both, and what is right, and what is justice, will be decreed by a tribunal, by whatsoever name, having chancery powers. The liberty of contract and property rights will not be destroyed, and labor will not be reduced to slavery, and the public will not be ridden down for want of a tribunal; and that tribunal may be called by one name or by another, and it may be presided over by a man called 'judge,' or a 'chancellor,' or an 'arbitrator,' but such a tribunal will have chancery powers, and with all the powers developed by the growth of equity jurisprudence for the last 200 years, and the growth yet to come."

In the same opinion, the court, viewed in the light of this article, ironically refers to the criminal function of the law, seemingly taunting it with its weakness. It says:

"Much of the intimidation was by language so low and coarse and brutal and vulgar and obscene that no one of the counsel in this case would excuse me if I were to repeat it. Suffice it to say that never before have I been compelled to read anything so villainously vulgar and obscene as in this case. And this vulgarity was invariably prefixed with the most execrable oaths. More than this can not be said as to the language of intimidation, unless I should recite the language itself. The evidence is in the record of the case, and can be read by those who desire to do so. This language was used by a limited number of defend-

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ants, and invariably, or at least generally so, in the presence of part of the other defendants. Some of the pickets at times were under the influence of liquor. But it is a fact to be regretted that, of the many acts of drunkenness, vile language and assaults, not in a single instance, so far as the evidence shows, was a party thus guilty informed against before the municipal authorities by any striker, or was he subjected to any kind of discipline by the lodges or officers of the strikers. It is one thing to advise peace and good order and gentlemanly conduct. But talking about and advising peace and good order and gentlemanly conduct, and then taking no action against violence and drunkenness and assaults and blackguardism and profanity, to me do not square themselves."

Every allegation made in the bill asking for an injunction against the strikers if true was good ground for criminal action, and the court in issuing the injunction had necessarily, as its only excuse for assuming such powers, to recognize the feebleness of criminal procedure to cope with the case, yet it holds that orderly strikers were lame in failing to make criminal complaints against their disorderly associates.

This case in question also gives Judge McPherson an opportunity to state his position on the labor question as follows:

"I believe, and that without a doubt, that, in so far as propositions are involved in this case, the law is as follows:

"1. The defendants acted within their right when they went out on a strike. Whether with good cause, or without any cause or reason, they had the right to quit work for the Union Pacific Railroad Company, and their reasons for quitting work were reasons they need not give to any one. And that they all went out in a body, by agreement or preconcerted arrangement, does not militate against them or affect this case in any way.

"2. Such rights are reciprocal, and the company had the right to discharge any or all of the defendants, with or without cause, and it can not be inquired into as to what the cause was.

"3. It is immaterial whether the defendants are not now in the service of the company because of a strike or a lockout.

"4. The defendants have the right to combine and work together in whatsoever way they believe will increase their earnings, shorten their hours, lessen their labor, or better their condition, and it is for them, and they only, to say whether they will work by the day or by piece work. All such is part of their liberty. And they can so conclude as individuals, or as organizations, or as unions.

"5. And the right is also reciprocal. The railroad company has the right to have its work done by the premium or piece system, without molestation or interference by defendant or others. This is liberty for the company, and the company alone has the right to determine as to that matter.

"6. When the defendants went on a strike, or when put out on a lockout, their relations with the company were at an end; they are no longer employes of the company, and the places they once occupied in the shops were no longer their places, and never can be again, excepting by mutual agreement between the defendants and the company.

"7. No one of the defendants can be compelled by any law, or by any order of any court, to again work for the company on any terms or under any conditions.

"8. The company can not be compelled to employ again any of the defendants, or any other person, by any law or by any order of any court, on any terms, or under any conditions.

"9. Each, all, and every of the foregoing matters between the company or to the defendants are precisely the same, whether applied to the company or to the defendants.

"10. The company has the right to employ others to take the places once filled by defendants; and in employing others the defendants are not to be consulted, and it is of no lawful concern to them, and they can make no lawful complaint by reason thereof. And it makes no difference whether such new employes are citizens of Omaha or of some other city or State. A citizen of Chicago, or from any State in the Union, has the same rights as to work in Omaha as has a citizen of Omaha.

"11. Defendants have the right to argue or discuss with the new employes the question whether the new employes should work for the company. They have the right to persuade them if they can. But in presenting the matter they have no right to use force or violence. They have no right to terrorize or intimidate the new employes. The new employes have the right to come and go as they please, without fear or molestation, and without being compelled to discuss this or any other question, and without being guarded or picketed; and persistent and continued and objectionable persuasion by numbers is of itself intimidating, and not allowable.

"12. Picketing in proximity to the shops or elsewhere on the streets of the city, if in fact it annoys or intimidates the new employes, is not allowable. The streets are for public use, and the new employe has the same right, neither more nor less, to go back and forth, freely and without molestation, and without being harassed by so-called arguments, and without being picketed, as has a defendant or other person. In short, the rights of all parties are one and the same."

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Washington Gossip.

Speculative Economics.—Washington is a great place for theories to flourish and bloom. Every "ism" of every sort finds a friendly shelter here. Theoretical economics is really quite a popular fad.

There are plenty of people in one sort of office or another who can spin glittering theories and mass tables of statistics and prove without a doubt that the moon is made of green cheese or any other absurdity that you desire—always provided you take their premises and that you know nothing about the subject practically.

A case in point was a meeting of one of these pseudo-economics societies held recently where some learned gentleman proved conclusively that the income of the average wage-worker's family is $487.83 a year.

This was accepted without a murmur, but when the discussion began a gentleman connected with the Census Bureau benevolently informed the club that if this aforesaid "average family" would only "live within its means" it could save something over $4,000 in 20 years to care for itself in old age. He supported his argument with various plausible remarks, but a practical brute who is trying to support his family on $1,000 a year arose to remark that he had a hard time of it, and judging from his own experience the $400-and-a-fraction family, if it confined itself strictly to only the barest necessaries would be about $4,000 in debt at the end of 20 years—if indeed it had not starved off the face of the earth long before that time.

The common sense of his talk was warmly applauded, but if he had not been there the Census Bureau theorist would have received just as much applause.

By the way, how popular "Lovey Mary" and "Mrs. Wiggs of the Cabbage Patch" are.

Don't say you haven't read them. Rather admit that you have neglected your Shakespeare and your Bible than anything in current fiction.

I read them in the copy of the magazine furnished at the Congressional library.

Once you read these books you see why the staid and conservative element of society raves over them.

Mrs. Wiggs was one of those women who manage to be philosophical and contented while living in the utmost squalor and poverty and dirt.

Lovey Mary is a foundling who gravitates to the same cabbage patch and gives an exhibition of the regulation Sunday School virtues under the same depressing circumstances.

Of course the comfortably well-to-do people are glad to hear that people can be happy in such circumstances. It goes to prove to them that all the discontent among workingmen must be very wrong and wicked.

But for all that most of us will persist in being discontented. We feel that the good things of earth are our heritage, else why should we be born with the same senses and brains as those of the more fortunate classes. We'll keep right on trying to get what is coming to us and while we may be philosophical and cheery we will not cultivate the contentment of the cabbage patch.

Labor Leaders in Congress.—One of the metropolitan journals which occasionally publishes very good editorials in regard to Labor rose to advise us the other day to send our National Union Officers to Congress. It thought it would be such a good thing to have a labor expert always on hand to let Congress know the right name of legislation adverse to labor. It was one of those editorials which sounded plausible but the officials of labor unions are already so busy that they don't desire to sit in Congress.

Then Congress is never without expert advice as to the character of legislation before it affecting the interests of Labor.

The Railway Brotherhoods keep representatives always in attendance upon Congress and so does the A. F. of L.

If your national officer were a member of Congress do not imagine that he could advise that august body as to the character of legislation.

In the House the work is done almost wholly in committee nowadays. So carefully are the rules fixed up by the combine in control that no subject is allowed to come up for debate unless by permission of the "powers that be" and then the same authorities decide who shall speak upon the measure.

Of course any member can "get leave to print" and have his impassioned

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speech blazoned forth in the Congressional Record. He can distribute copies to his constituents and make them feel that they are getting the worth of their money in the Congressional vaudeville which goes on so continuously at Washington during certain portions of the year, but let them not imagine that the new member or he who represents the opposition has any power in Congress.

Of course, it's different in the Senate; everybody can talk as much and as long as he pleases—but this progressive newspaper only suggested that labor officials become members of the House. It is regarded as beyond the limits of the possible that the labor leader should enter the Senate. "It would be easier for the camel to pass through the eye of the needle, etc.," if the quotation does not seem irreverent in this connection.

The present system of a Legislative Committee of expert, intelligent and loyal union men who attend committee hearings and present the claims of organized labor is a much more effective if less spectacular plan.

They represent organized labor and constantly keep it informed of what is going on. The experts are already there, but even the editors of great newspapers sometimes nod, the man who wrote the editorial had evidently never heard of a legislative committee.

Interest in the Wabash Injunction.—It is not very encouraging to organized labor to see with what complacency the leading eastern newspapers and jurists regarded the Wabash injunction. In Washington the comment on it was almost wholly in its favor, when it was discussed in official circles.

The dissolving of the injunction did not meet with the same favor. Probably not one man in ten in professional and official circles could tell you why the injunction was dissolved.

There is a sort of idea that it served its purpose and was dissolved as a matter of compliment to the railway organizations.

It seems strange how little the public realizes that this injunction sought to deny one of the vital rights of wage-workers—that is to quit employment either singly or collectively. They do not see that to take away this right involves actual slavery—the chaining of the worker to his employment.

It sounded so easy to suggest that the transportation and mail service were so sacred that they should not be disturbed. It is important that they should not be disturbed, but the responsibility lies with the employers to provide such fair conditions of employment that they make certain their employes will have no reason to go on strike.

Contrary to the popular notion, men do not go on strike without good reason—especially skilled and organized men—the unskilled and unorganized may occasionally be seized with the sort of recklessness which impels them to throw away employment for a real or fancied grievance—but even this is much more rare than is supposed.

It is a pity that the outside public can never realize how long wage-earners will put up with insufficient wages and bad conditions of employment because to push the grievance to the point of leaving work may involve suffering to those dependent upon them.

In the ranks of organized labor, however, the dissolution of the Wabash injunction is rated at its full value. The danger of this new encroachment upon organized labor was fully realized and the moderate yet firm attitude of the railway employes in taking up the matter and securing a reversal of the injunction is considered as something very remarkable. Employers will have this precedent often laid before them to remind them that the securing of an injunction is not the only thing. They may be compelled to prove its necessity or have it dissolved.

It is a bad sign, however, that the injunction is invoked so frequently and that it seems impossible to build up or arouse the proper public opinion on the subject. The average citizen sees no reason why union men should be restrained from going on strike. He fails entirely to realize that court-made law in one direction will be followed by invasion of rights in others. He can not appreciate the danger until his own toes are trodden upon.

President Roosevelt on Labor.—The utterances of President Roosevelt during his Western trip are naturally looked upon somewhat in the light of advance campaign material.

What he has to say about organized labor is closely scanned by employers as well as workingmen.

The general opinion of the latter seems to be that what he says is all right as far as it goes, but it might go a good deal farther.

Arbitration is a good thing, and he is right in calling attention to the good results of the Coal Strike Commission—formed at his suggestion.

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But arbitration is rather an old story to organized labor. Its uses and limitations are pretty well understood.

If the men are well organized and have a good case, they can usually get the employers to arbitrate—as they do in thousands of cases already. The occasional perverse employer, like the coal trust, can safely be brought to the bar of public opinion and left to be dealt with according to its folly.

But organized labor has no use for the sort of arbitration in which federal law could play any part. It is distinctly opposed to Compulsory Arbitration.

So what organized labor wishes is that President Roosevelt would in his public speeches line himself up in favor of the much-needed Anti-Injunction law, the Eight-Hour law on government work, a good Chinese Exclusion law and things of that sort.

It is coming more and more to be the case that the executive meddles considerably with the law-making branch of the government. The wishes of the executive are taken account of by Congress. If President Roosevelt would openly and emphatically declare himself in favor of the few important measures on which all organized labor is agreed he would make himself very popular and would materially increase the chances of the passage of such laws by Congress.

It is rather discouraging when we remember that the last Congress passed not a single labor measure. Yet the anti-injunction bill, for instance, was needed as much as any emergency measure for public safety which has ever been offered. The Wabash injunction and several others issued since Congress adjourned shows how quick employers were to take advantage of the lethargy of Congress in regard to industrial matters. On the other hand there is no doubt but President Roosevelt's strong commendation of labor unions has a good influence on the narrow-minded and the timid who never believe in anything until some one in authority puts on the seal of approval.

EVA MCDONALD VALESH.



The Wabash Controversy.

Never before in the history of this nation has there been more interest taken than was shown in the Wabash wage schedule controversy. The outcome of this case was watched by employer and employe with equal interest. At one time this affair reached serious proportions, and it looked as though a conflict between capital and labor would surely take place.

The Wabash management secured an injunction restraining the Grand Lodge Officers of the B. of L. F. and the B. of R. T., as well as the committees of firemen and brakemen, who represented the enginemen and trainmen on that line, from ordering a strike. The will of the court on the part of the defendants was obeyed, and this, in itself, prevented the aggrieved parties from quitting the service of the Wabash Railway.

The boast of the Brotherhoods has always been that the members were law-abiding citizens, and if there ever was a time when the members of organized labor proved themselves worthy of commendation it was when they obeyed the letter of the law.

The injunction was issued and served on the Grand Lodge officers and committees while negotiations were still pending for a settlement of the questions at issue. This, in itself, was enough to make men angry, but the respect to the laws of the country was not at any time lost sight of. "Whom the gods wish to destroy they first make mad" was also thought of by our members. That we might prove to the people of this great Republic that we believed in law and order, and that we could and would go before the courts and establish the justness of our side of this important case.

Government by injunction was not a new instrument to deal with. The organizations had been "up against it" before, but not in the same manner as in the Wabash affair. It seems that an injunction can be secured for any alleged complaint, and it matters not whether the allegations are true or false; it is all the same. Misstatements of facts or untruths count for nothing, should the injunction be dissolved. That the labor organizations of this country have been trying to get the National Congress of the United States to make a change in the laws regulating government by injunction is not a secret. But, as a rule, laboring men would much rather "resolute and whereas," than to vote for the man who would work to their interest.

In this late controversy we had some experience that we don't care to have again. While labor organizations may not meet with the injunction business in the same manner soon again, as was done in the Wabash case, it must not be forgotten that "Government by Injunction still lives!" and it will come again in

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another form and for some other trumped-up case.

Our national lawmakers very seldom carry out their pledges, made when they are out seeking votes. Then, they know the average wage earner doesn't seem to care what is done then, for there is no need to be uneasy about their position. It is the opinion of many that if the easy weapon known as the "injunction" could not have been secured the Wabash matter would not have reached the serious phase that it did. The injunction case was fought to the end, and was dissolved by the judge who issued it. The judge in handing down his decision said that labor had a right to organize! had a right to strike to enforce its demands, but did not have a right to destroy property, etc. The decision of Judge Adams was as sweeping in setting aside the injunction as it was when he issued it.

When Judge Adams issued the injunction, and the same became press news, prominent attorneys for corporations in distant parts of the country wired for copies, so eager were they to get something that would check the advance of labor organizations. I wonder if they are as anxious now to get the proceedings of this trial, and the decision of the judge establishing the rights of labor and labor organizations. I am sure that after the corporation lawyers get through reading and digesting 622 pages of reading matter they will come to the conclusion that labor has some rights that even capital shall respect.

The rendering of the decision, as was done in this famous case, and the setting aside of the injunction and defining the rights of labor organizations, ought to give warning to some people I know of who are threatening their employes with discharge should they join the Brotherhood of Locomotive Firemen. Should they not heed the warning, one of these days they will be "up against the buzz saw" while in motion, and will feel the effects of the saw.

At no time has our Brotherhood been a violator of law, or have the members ever advocated other than the strict obeyance of all laws, both State and national, and it is the opinion of all that the manner in which our members conducted themselves, and what the Order teaches its members, had much to do with the decision being rendered in their favor. All members of the B. of L. F. and the B. of R. T. should feel proud of their orders, and I am sure they do and will not forget to do right in all things. It will be to their advantage in everyday life.

For five months did the Wabash committee of firemen make a faithful effort to better their condition, and words are not at my command to give expression to my feelings of gratefulness to them for the manly stand they took in the controversy. Every fireman on the Wabash Railroad is under lasting obligations to this committee which did so much to make the lot of the fireman out on the road easier. Two lodges on the system did not send representatives, which left it for the remaining six lodges to do the work. The committee was composed of the following brothers: Chas. A. Lewton, of 54, at Moberly, Mo., chairman; Fred Englehardt, of 535, at Chicago, Ill., secretary; Chas. Augur, of 405, at Peru, Ind.; A. H. Martin, of 5, at St. Thomas, Ont.; H. C. Niemeyer, of 556, at Ashley, Ind.; B. W. Shaffer, of 526, at Stanberry, Mo.

There were times when things looked discouraging, and the conditions which surrounded them were enough to make men feel as though their cause would be lost, but with all of this they stayed manfully with the work they had pledged themselves to do, and were faithful to their brothers at home to the end. The last five weeks of the affair was the hardest part of the work, and during all this time the committee had the counsel and advice of Grand Master Hannahan, who was with them night and day until the end. This shows the devotion of this worthy brother to the cause he has obligated himself to, and the committee appreciates his work in its behalf.

To show to our readers how much our Grand Master and the committee were thought of by St. Louis people, and especially by those in authority in the city of St. Louis, Chief of Police Kiley said that he had only words of praise for the members of our committee and Grand Master on the excellent way in which they conducted themselves all through that trying ordeal. After the agreement on the Wabash was signed, Chief Kiley said that it was his desire that Grand Master Hannahan remain over in St. Louis for a few days and visit with the people, as the struggle had been a hard one, and the most excellent results that followed it entitled the people to a few days of his time to sojourn with them. The chief further said that he would detach Officer W. A. Murphy, who is a member of Industrial Lodge 21, B. of L. F., to take charge of him and see that

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he was entertained properly, and that nothing would be left undone to make the stay pleasant, and that no expense would be spared in entertaining him. This, in itself, shows the feeling of those in a large city like St. Louis, who are in charge of affairs, and who also know what a strike means.

The legal part of the Wabash affair was handled by Bro. John Murphy, of Denver, Col.; Mr. W. T. Irwin, of Peoria, Ill.; Mr. F. F. Judson, of St. Louis, Mo., and Mr. Piney, of Cleveland, Ohio. The legal talent for the Brotherhoods did their full duty and deserve special credit and praise for their undivided efforts in presenting to Judge Adams the defendants' side of the case. Judge Adams did one thing, above all others, that should win for him the respect of working people, and that was in recommending that the controversy be given to arbitration if the parties interested could not meet on middle ground. But there was no need of submitting this matter to arbitration, as both sides met and settled the affair without any trouble. The committees say that they found in Mr. Ashley, the assistant to President Ramsey, a fair and just man, and that it was no trouble to do business with him. By the time the conference ended there was a good feeling existing again between the management of the Wabash and those who were interested in the controversy, and to Mr. Ashley, as much as anyone, belongs the credit of bringing this about by his honorable method of meeting the employes and settling the trouble without letting matters assume any more serious proportions. This is as it should have been from the start; then there would not have been the excitement there was and the possible danger of a strike. Mr. Ashley did not have anything to do with the matter until after President Ramsey was called to a foreign country on account of the serious illness of a member of his family. Through instructions of Mr. George Gould, if my information is correct, did Mr. Ashley take charge of matters and settle one of the greatest wage controversies that has occurred in the history of our railroad labor organizations.

Every man, woman and child should be glad a dozen times that the foresight of these parties to this whole affair could see far enough into the future to avoid a conflict which, when once started, it is sometimes hard to tell where it will end.

Our Brotherhood, like all other labor organizations, will not use an extreme measure unless forced to do so in the settling of any question, and I hope it will be a long time before we will have a similar experience as we did on the Wabash.

In conclusion, I wish to say to our brothers that I kept a close view of this matter from start to finish. I never had anything to do with the affair directly, but I appreciated the situation more than once and comprehended the importance of a decision against us, and all other labor organizations as well. That this matter will go down in history as one of the most important events in the history of the toiler can not be denied. In after years will this famous case be referred to often in the struggles in the courts for what the toiler thinks belongs to him, when Government by Injunction again plays its part.

CHAS. W. MAIER.

Judges and Injunctions.

Ready-made law to meet the needs of the case through the medium of the injunction is prospering and growing to an enormous extent as time passes, and no honest effort is made by our law-making bodies to curtail the power of judges.

At one time the Constitution provided for three distinct departments in legal matters, and each was respected in its rights. At the present time the three departments nominally exist, but their powers have been assumed by one of them.

There are the law-making bodies, the law-interpreting bodies, and the law-enforcing bodies, and the functions of all three have been assumed by what the Constitution declares is the law interpreting bodies or, plainly speaking, the courts, and as the judge is, so to a large extent will the court be.

It hardly seems as though there is very much need of the people or the corporations worrying about who makes the laws, for the judges will meet the wishes of the corporations and the people can take their medicine just so long as judges have the arbitrary power now vested in them. While some of them may use this power honestly and fairly, the general tendency is to give the money power the benefit.

It does not matter particularly whether it is a case of a millionaire embezzler, or a millionaire murderer, or a wealthy corporation that desires to employ cheap labor in a position that requires the services of a high-priced, well-informed man, as in the employment of licensed engineers or unlicensed ones, or an injunction

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to restrain its employes from quitting or doing anything but breathing, the law is always made for the benefit of the man with money, and he always gets the full benefit.

There was a story once told of Jay Gould that he remarked once that "when he wanted a judge he went out and bought one before breakfast." While Jay is dead, the application of his remark may still be possible.

If the injunctions recently issued in several instances hold good and men can be enjoined from quitting, how far are we from slavery, and a worse form of slavery in some respects than existed prior to the Civil War in the United States? While under chattel slavery a slave could be sold, or punished by whipping, yet his master must feed and clothe him or her as the case might be. Under the wage system where the laboring people can not quit to enforce reasonable demands, their master (in conjunction with the courts) can compel them to work, yet discharge them at will, and is under no obligation to provide for them. He can punish them by suspension, and after they have been driven from his employment, if he so desires, can prevent their securing work elsewhere. And this is equality under the law—an equality that exists only in name.

Perhaps the taint of money goes through all classes, for men say that few men elected to an office under the government respect the will of the people after the office is obtained. It may be hard to frame a law that will say to the judges how far they shall go, when it is in the power of one of these men to say the law that curtails their power is *unconstitutional*, yet Congress should go at the question honestly as one affecting the public good. All good men deplore anarchy, for anarchy is another name for lawlessness, but when the courts are in a state of anarchy one must expect to find it existent with the people.

In Holland a law is up for passage which will deprive men of the right to strike under fine and imprisonment, and it is possible it will be passed. In this country there is no need to pass a law. When the need arises a law will be made in the form of an injunction to suit the occasion, and, no doubt, at the present rate, such a law as is proposed in Holland will be up for passage here.

At the present time the majority of men proposed for office are men of wealth, or men with expensive tendencies, and who use their office to satisfy their extravagant desires. The working people too often support these men at the polls on account of party, without any regard as to what the man is or how he has shown himself disposed toward laboring people. At the polls is a good place to commence, by finding out for yourself what a man's principles are, and deciding if he is for the people or against them, and voting accordingly.

W. L. FRENCH.



West Virginia Leads in Increased Tonnage for the Year.

Hundreds of new mines throughout the country have been opened, giving employment to thousands of additional men. When statistics are compiled showing the production, it will be found that West Virginia leads in the increase of tonnage, if we deduct the loss to the State on account of the strike. Millions of dollars have been invested in coal property during the last year. Much of this capital has been invested in coal for the purpose of development. But thousands of acres of coal land have been bought for no other purpose than a safe and profitable investment. Those who invest their money fully realize that by reasons of the increased value of the coal it will bring greater returns than they could hope to secure from interest on government bonds or other securities. Coal lands have doubled in value in the past few years. This is true of many places in West Virginia and Ohio.

The trouble in regard to labor in the mines during the last year has made a history, if for no other reason than the prominence given to the labor movement by the official representatives of our government. The strike in the anthracite region is without a parallel for the feeling displayed by the interests, the manner in which many of the mine workers kept their ranks unbroken, and the promptness with which the public, the laboring class of people, and the United Mine Workers contributed to the relief of the anthracite miners. The controversy was noted for the utter disregard by the operators of public interests. This phase of the contest called forth such a storm of public indignation that it culminated in the appointment by the President of the Nation of a commission to investigate and render a decision on the questions in dispute, the questions at issue between the operators and mine workers and the written laws of our country.

The strikes that have occurred during

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the past year as a result of disagreements between the operators and mine workers have disturbed the coal market to such an extent that enormous prices are being paid for coal and coke. During the past few weeks, as high as $4 per ton for coal and $7.50 per ton for coke on board cars at the mines has been paid. In fact, there has simply been a coal famine throughout the country this winter. The scarcity of fuel, like any other commodity, is what regulates its value. This accounts for the present high prices being paid for coal and coke. Still, the high prices are not caused by the scarcity at the mines, but by the inability of the railroads to transport the coal and coke to the markets. The railroads are not able to handle the required coal tonnage for want of sufficient motive power and rolling stock. The railroads are not to blame, because they can't get locomotives and cars built rapidly enough to take care of the increase in railroad tonnage.

It is harder to employ good mechanics than it is common laborers. This accounts, to some extent, for the failure of locomotive and car builders to more promptly supply transportation equipment. I do not think that the present prices being paid for coal will continue, but that it will sell for probably years at much higher prices than has been paid for it during the last decade. The general tendency of the railroads to advance freight rates the coming year also demonstrates how sacred we regard the terms of a contract.

In my opinion, the United Mine Workers' organization, if managed properly, will include in its ranks every mine worker in the country. Operators and their employers will have mutual respect for each other. Then annual or biennial wage contracts will be agreed upon, and strikes will be eliminated from the mining industry. B. H.

Heroes

There's many a man goes toiling,
And many a woman, too—
In obscure ways, o'er thorn and rock,
With hearts e'er brave and true—
Whose power might guide a nation,
Whose grace might gain a throne,
But Duty points another way;
They tread her paths—unknown.

There's many a hope lies buried,
And many a soul who might
Have carved their name with eager hand
On Glory's towering height.
And yet for those who need them,
They cast their hopes afar,
And all unconscious to their crown
Add one more jeweled star.

There are heroes in the world today
Who bear the brand of scorn,
Who struggle on in Duty's way
With hearts all seared and torn,
And thus without a murmur
They fight the bravest fight,
Who bear the world's keen censure
Because they know they're right.

Then let us give them laurels
And let us sound their praise.
They banished life's ambition—
Fled from alluring ways;
They are the grandest battles
That tell of duty done;
Then let us bring them laurels—
They are heroes, every one!

—Laura Wilson McClellan, in Railway Clerks' Journal.

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Sparks.

Bro. W. E. Sullivan, of Lodge 43, St. Joseph, Mo., writes that his lodge is to have an entertainment and banquet in honor of L. Mooney, who is to visit St. Joseph on May 3d, at which time a lodge of the Ladies' Society will be organized. The St. Joseph (Mo.) News of April 4, 1903, says: "Members of St. Joseph Lodge No. 43, Brotherhood of Locomotive Firemen, are preparing for a reception to L. Mooney of Hillsboro, Tex., to be held at Turner Hall early in May. W. E. Sullivan, Secretary of the lodge, said today that the reception and entertainment probably would be held the evening of May 3d, but the exact date can not be fixed until Mr. Mooney is again heard from. Mooney is to be honored with a reception by the local locomotive firemen because he is the only charter member of the St. Joseph lodge who still retains his membership here. The lodge was instituted in 1875, and he has been a member in good standing for nearly twenty-eight years."

Cards announcing the arrival of a little son to bless the home of Bro. and Mrs. W. G. Edens, at Chicago, Ill., have been received at the office of the Magazine. William McKinley Edens was born March 18, 1903. Our most hearty congratulations are tendered to Bro. Edens and wife, and we trust that the young man may be as successful through life as was the one for whom he was named. Bro. Edens is a prominent member of the B. of R. T., and is Assistant Superintendent of Free Delivery, U. S. Postoffice Department.

As the train bearing President Roosevelt on his recent tour of the country pulled into LaCrosse, Wis., April 4th, Bro. Wm. Russell, Secretary of Lodge 168, B. of L. F., in behalf of the lodge, presented the President with a large bouquet of American beauties, which pleased the President very much, and he asked Bro. Russell to extend his thanks to the lodge, and tell them he was more than pleased to be remembered by the "boys." From the LaCrosse (Wis.) Morning Chronicle, in which was published the speech of the President in that city, in referring to labor organizations he said "it furnished one of the men on the anthracite commission which did one of the grandest pieces of work in our history toward settling the industrial difficulties that now confront us." The same publication in referring to the bouquet of American beauties presented to the President by Bro. Russell in behalf of the local lodge of the Brotherhood of Locomotive Firemen credits the President with saying: "This token I appreciate more than gold because it comes from the hand of the laboring man."

Mr. Miles Johnston, father of Bro. M. A. Johnston, of Lodge 441, who was killed in a wreck on the morning of September 9, 1902, writes the Magazine that Bro. Johnston was buried in the family burial lot at Miamiville Cemetery, and that a headstone has been placed at his grave bearing the inscription "A dutiful son and brother—B. of L. F." Mr. Johnston states in behalf of the family that they feel very grateful to the Order for all its kindness to them in their time of extreme trouble, and will ever hold it in kindest remembrance.

Bro. W. G. Newall, a member of Lodge 197, at Savanna, Ill., writes that he has severed his connection with the C., M. & St. P. R. R., and will represent the Continental Casualty Company. He will be pleased to talk insurance and explain the advantages of carrying insurance with the Continental.

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Bro. J. A. O'Dea, of Lodge 199, Youngstown, Ohio, writes the Magazine that his lodge is getting new members right along, and that they have several applications in at the present time.

Appropriate resolutions of respect have been adopted by Lodge 70, B. of L. F., over the death of Bro. C. C. Hamman, who was an esteemed member of that lodge.

By an error, the wrong heading was placed over the article from Bro. R. E. Quirk, Chairman of the B. of L. F. Legislative Board of the State of New York, which appeared in the April issue of the Locomotive Firemen's Magazine.

Bro. Chas. Bennett, Secretary of Lodge 188, Chicago, Ill., writes that his lodge has never been asked to do anything more sad than to grant the request of Bro. L. L. Gay, an honest, tried and true B. of L. F. man for twenty-one years, for a final withdrawal card to join the B. of L. E. With him went Bros. Thos. Well and C. L. Grice. Bro. Bennett says that while it makes the old home look sad, these brothers will have the firemen at heart first, last and forever.

Mr. George E. Barnett, Department of Political Economy, Johns Hopkins University, Baltimore, Md., writes that the University has been able, through the notice recently published in the Magazine, to procure a file of the Locomotive Firemen's Magazine for the years 1886 to 1899, inclusive. He states that there are two breaks in the set, and that the September, 1889, and the May, July, September, November and December, 1897, numbers are still lacking. Any one having these numbers, as well as earlier volumes, which they are willing to dispose of are kindly requested to correspond with Mr. Barnett.

The members of the Joint Protective Board of the Rock Island System desire to express their thanks to Grand Master Hannahan for the help and advice he gave them last summer and fall while working for a new schedule, and as a token of their appreciation have presented him with a combination K. of P. and B. of L. F. watch charm.

Miss May H. McLang, daughter of Bro. J. H. McLang, of Lodge 178, writes to advise the friends and brothers of his convalescence after undergoing a very severe operation at St. Ann's Hospital, Anaconda, Mont., for gall stones of the bladder, on February 16, 1903.

One of our members on the Southern Pacific Railway (Atlantic System) writes the Magazine that fine increases in pay have been secured all along the line.

Forum

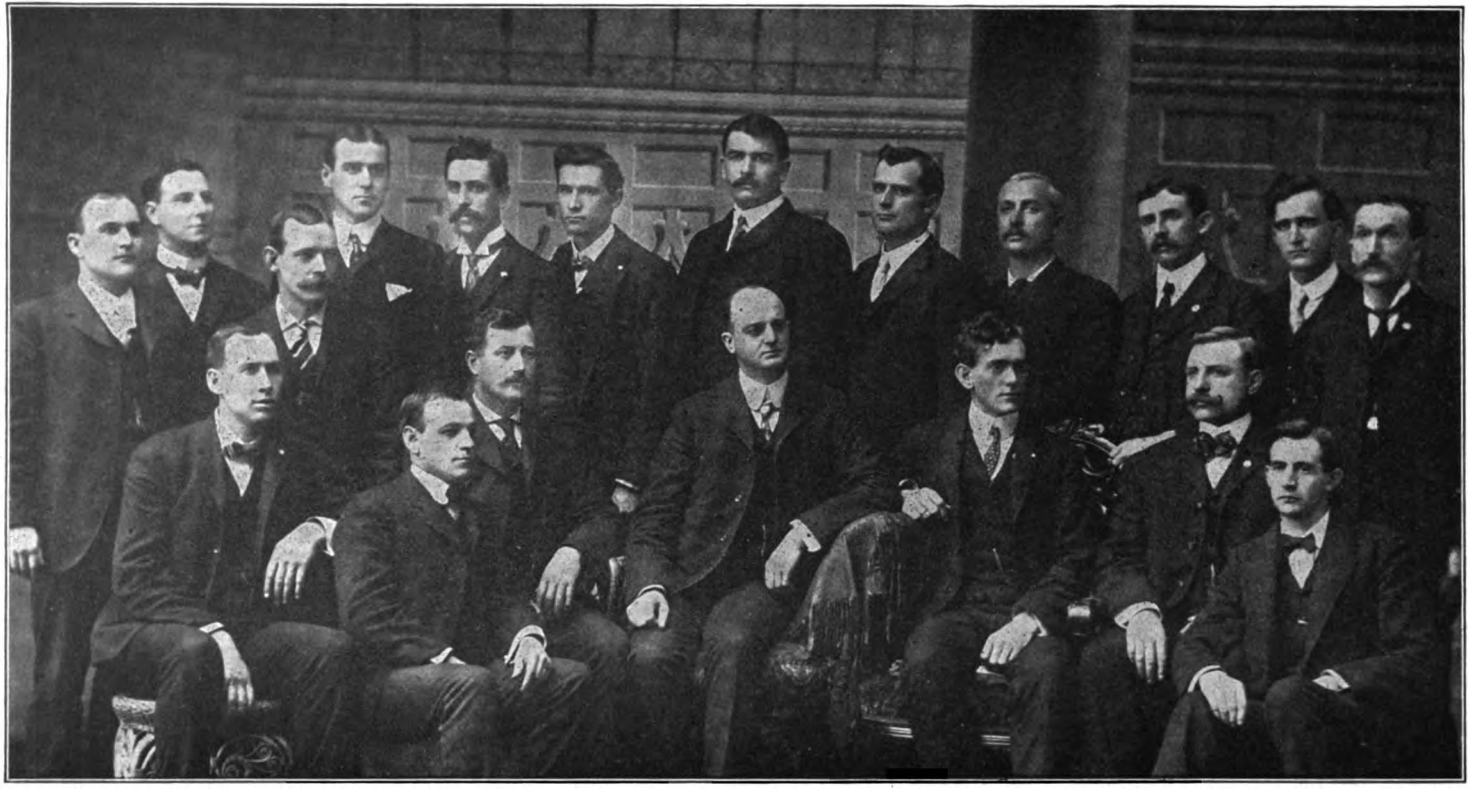
Brotherhood Topics.

While my mind may run along the general trend of that of the average locomotive fireman, it frequently comes under my personal observation that the majority of young firemen entering our Order are not as proficient in their calling as Brotherhood firemen should be. Often a misunderstanding as to the real benefit to be derived from the Order is misconstrued. It is my belief that to the junior fireman things frequently look very hazy as he tries to dissolve the mist that may surround him by this lack of quick comprehension during his initial service, or any other thing that may not be made plain to him during his initial career as a Brotherhood fireman.

We are all possessed with a reasonable amount of common sense, and a desire to do the right thing at the right time, but frequently it happens that what may be thought of as the right thing by the individual will end disastrously to him, and had he sought the advice of his seniors while congregated in executive sessions a more rational settlement might have been brought about. Were this more thoroughly adhered to our young firemen would soon become educated to their chosen occupation, and would know instantly when their rights were taken from them, and could then act intelligently.

It frequently happens that a young man whose ambition has been partially realized will get disgusted, and perhaps indignant, at his engineer simply on account of his ignorance, and if he is fortunate enough to remain on the engine deck a few years he will see his mistake and profit by it. But that kind of experience is dear, and has caused many a good man to lose his job.

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JOINT PROTECTIVE BOARD OF THE B. L. F., CHICAGO AND NORTHWESTERN RAILWAY

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While I am aware that old heads can not be put upon young shoulders, yet it is possible that timely information can be given young men, and when it is given with the Brotherhood back of it it will be given with good authority and purpose and can be depended on. But even with a system prevailing that has no object in view other than to simply get the quantity of men, and not quality, and one that culminates in an "everybody-to-his-own-notion" plan, it can not amount to much, despite the fact that our Order is prospering as perhaps it never has, which does not say that it could be more aggressive and more powerful, were more attention paid to perfecting the members already in the Order. The business of soliciting membership would then become extinct, and the young fireman's next ambition after getting his job would be to join the Order.

I am of the opinion that with a more perfect organization, where the men are well acquainted with the positions they hold, both to themselves and the company, that when any grievance arises if it is promptly handled first by the men collectively and well aired, it would be of much benefit to our Order, whereas in many cases these are left to perhaps two or three to handle, and, if it doesn't suit, many of the non-present class will have to grin and bear it, and give vent to their wrath by expostulating with each other—not in secret—as to the condition of things.

Much money is spent annually by our organization for the adjusting of grievances that may arise during the year, but how can this amount to much unless it has the earnest, as well as intelligent co-operation of the men from the locality from which it comes? Besides, it seems to me that were men more willing to carry out the provisions of their contracts, officials would be much nicer to handle, and a Brotherhood fireman would command considerably more respect from them than they do sometimes. I am aware, and that to the limit, that the fireman's lot sometimes seems intolerable, yet if a man takes a position he is supposed to handle his part to the best of his ability, and not simply on account of his representative failing to relieve him of a part of his duty that his lot might be made better, quit his accustomed routine of business and do as little as possible, and then, after he gets into trouble, declaim the unjust methods capital uses to get work it wants done.

When railway officials can be made to understand that the Order is working to give the company better service, as well as men, and when men desire to do the right thing by the company by being allowed the use of their judgment, without the theoretical opinions acquired under entirely different circumstances, then will men become satisfied and work to the company's intesest. Men are not machines and can not be worked as such under any conditions and, further, they will not. A horse may be fed better than he has been accustomed to being fed, but what does his feed amount to if his load is made heavier in proportion to the feed given him? He is only working his vital organs that much harder, and wearing himself out that much faster. Just so with men; they can not afford to sell their lives to increased servitude for increased compensation, and as long as this continues and railroad companies keep up their method of "robbing Peter to pay Paul" for the purpose of increasing their dividend, just so long may they expect to be confronted with the desire from the men for an increase in pay.

It is my opinion that, could practical railroad men, that is, men who are actually in the service, place before the managements with a solid front the things they desire, and insist that they be so with good reason, it would not only benefit the men, but the companies, also the public at large. GEO. A. WEIL.

Union Meeting of Railroad Organizations in the South.

After several months of hard work by the executive committee for the Union Meeting of Railroad Organizations, to be held in Montgomery, Ala., and Pensacola, Fla., June 2d to 6th, inclusive, arrangements have been perfected whereby all visitors can secure board at from $1 to $2 per day at our leading hotels and boarding houses. Also, arrangements have been made with the managements of the different railroads leading into Montgomery by which transportation can be secured by request from the superintendents of the various railroads by whom parties requesting are employed. The following is a condensed program for the three days meeting in Montgomery:

June 2, 1903—Formal opening at 2.30 p. m. at Auditorium. Address of welcome by State, city and railroad officials. Responses by Grand Officers of the vari-

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ous organizations. Reception to Grand Officers, 8 to 11 p. m. at Exchange Hotel parlor.

June 3, 1903—"Order Day." Sessions 9 to 12 a. m., 2 to 5 p. m. Grand ball 9 p. m. at Auditorium.

June 4, 1903—Old-fashioned barbecue at Picket Springs. Trains will leave Union Depot for Pensacola, Fla., at 9.35 p. m.

Badges will be provided which will admit visitors to reception, ball and barbecue. All participants to the ball are respectfully requested to wear appropriate costumes. A similar program will be arranged for Pensacola. All with whom it is possible are urged to meet with us at that time.

J. C. COMER, Chairman.
J. H. MCCALL, Secretary.

In the Field

First Vice Grand Master.

I left home March 21st with my face turned toward the "Sunny" South. My first stop was at Alexandria, Va. Here I met Bro. L. F. Harvey, the former Master of Lodge 258. Bro Harvey, who holds membership in the Brotherhood of Locomotive Engineers, rendered me all the assistance in his power, and I am indebted to him for his kindness and the interest he takes in the welfare of the firemen.

While at Alexandria I held three open meetings in the interest of Lodge 258. The former members of this lodge have all been promoted to engineers, and after they had served the allotted time they joined the B. of L. E. From that time their lodge commenced to go down to the extent that after Bros. Harvey and Lynch left the lodge there was no one who took interest enough to attend to the business of the lodge, notwithstanding, 70 per cent. of the firemen at Alexandria, on the Washington Division of the Southern, are white firemen, and there was twenty of this number members of 258. However, I believe the results of the open meetings will be beneficial to the new firemen, as there was a movement on foot to organize a new lodge in May, and I am looking forward with pleasure to organizing a lodge representing the Washington Division of the Southern Railroad, that will be a credit to the organization as well as a protection to the members.

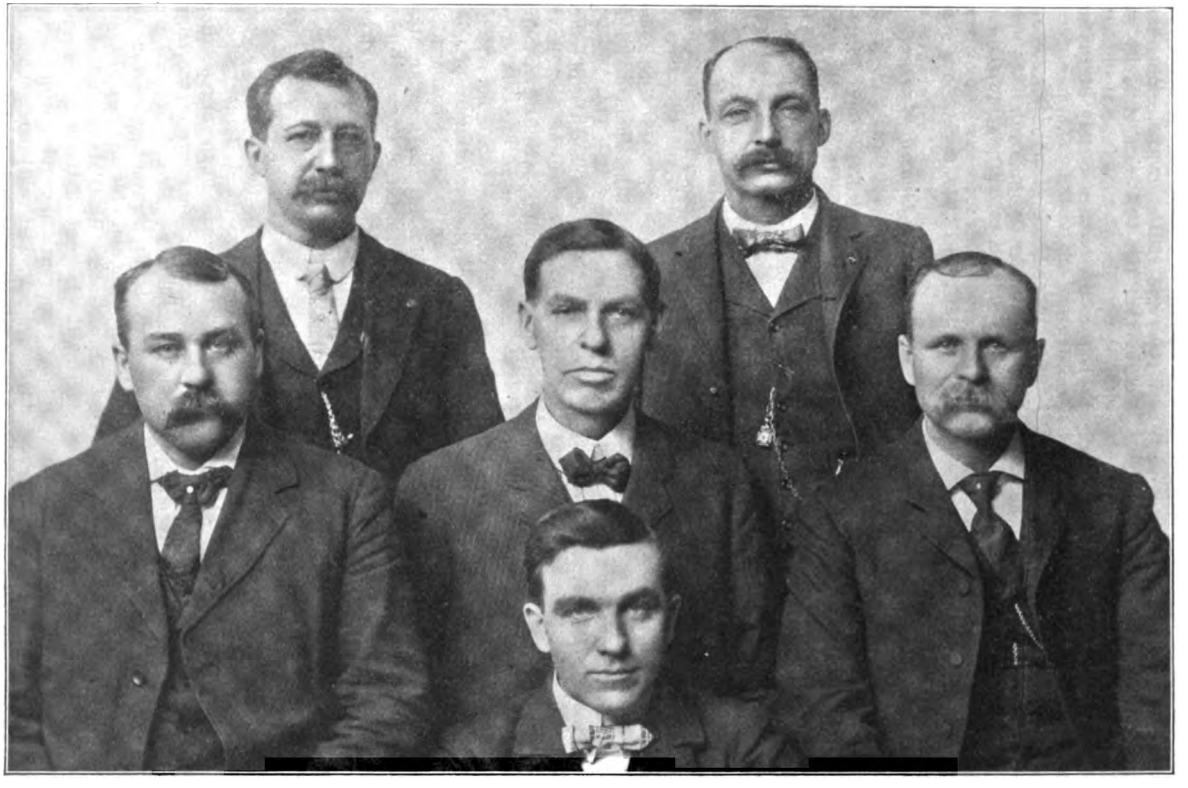
While at Alexandria I had the pleasure of forming the acquaintance of Mr. Keys, road foreman of engines, and I don't want any more evidence than what I acquired at the roundhouse to convince me that Mr. Keys is doing all he can to assist the firemen in assuming their increased responsibility. I was surprised to find Bros. J. P. Andress, of 413; M. Bostwick, H. Shafer, James Damon, Grant Forbes, G. F. Cole, W. Dennison and W. J. Decker, all of Lodge 379; John Flickinger, of 251, and N. R. Morse, of 60. All these brothers are working on the Southern Railroad, out of Alexandria, Va., and I expect them to take interest in the new lodge and make it the "banner" lodge of the South.

While waiting for a train that my transportation was good on I realized I was losing time, hence I decided I could not possibly use it to better advantage than by taking a run to Washington, D. C., and call on our Past Grand Master, Bro. Sargent, and his efficient clerk, Bro. Donahue. To say that I made no mistake when I decided to go to Washington would be putting it very mildly, for I was heartily received and royally entertained by the two brothers, as the following will convince you. I was taken a carriage ride around the city and through the beautiful Rock Creek Park. No one would think while going through the streets of the beautiful city of Washington that within a few minutes ride to Rock Creek Park one can see a real forest, as natural and true to nature in every respect as can be found anywhere in this great country of ours. I found our Past Grand Master in his usual good health, happy and contented.

My next stop was at Bristol, Va., the home of Lodge 453. I am sorry that I have to say I found the lodge under suspension, yet there is no one to blame but the members themselves. However, I am pleased to say that there is a lodge to be organized at Bristol to take the place of 453, and I sincerely hope that it will be an honor to the Brotherhood and a credit to the members.

My next stop was at the beautiful city of Roanoke, Va. The Norfolk and Western have their general offices there, and their buildings would be a credit to any of our large cities. While there, I had

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JOINT COMMITTEE OF ENGINEERS AND FIREMEN, F., E. & M. V. RY.

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the pleasure of forming the acquaintance of Mr. L. E. Johnson, who holds the lucrative and responsible position of vice president of the Norfolk and Western Railroad. I found him to be one who is well acquainted with railroad work, being a practical railroad man in every respect. The Norfolk and Western have under way vast improvements, among them double tracking the road, which, when completed, will make it one of the leading roads of the country. At Bristol, Va., the citizens are loud in their praise of the handsome depot, just finished. I spent three days at Roanoke, looking after the interests of the members of Lodge 182. While at the roundhouse I met Mr. L. D. Gilleet, who holds the position of general foreman of engines of the Norfolk and Western, and in my conversation with him I soon found that he had a warm spot in his heart for the firemen. He prides himself on having the best corps of engineers and firemen in the South; this alone speaks well for the members of Lodge 182, as about all the firemen employed on the N. & W. are members of the organization. On Sunday, March 29th, I attended the meeting of Lodge 182, and, while I did not have the pleasure of meeting either the Master, Collector or Treasurer, I was informed by Bro. J. E. Urquhart, the popular Secretary, that the lodge is in good condition, but that the heavy business on the road frequently keeps the brothers away. During my stay in Roanoke I had the pleasure of having the company of our esteemed friend and brother, C. M. Kidd. Bro. Kidd showed me every courtesy in his power, and I take this opportunity to thank him for the sacrifices he made in my behalf. Bro. Kidd has been appointed air brake instructor over the entire system of the Norfolk and Western, and he has one of the best and most perfectly equipped instruction cars in the country.

I find in every place visited that the members are busy, and it is next to impossible to hold a meeting with any assurance that there will be a fair attendance. Every road seems to be so busy that the men seldom get time to attend lodge meetings. I am pleased to note that each lodge has a few applications on file, and when an opportunity presents itself they will be initiated.

Bro. P. J. McNamara, of Lodge 12, says that his lodge is in number one condition, as well as Holly Society 70. Their officers and members are alive with interest, and they are heart and soul in their work. Too much credit can not be given the members of this society, especially the drill team, who are drilled by the flash of the lamp, red, green and white; these lanterns were made especially for the team. Miss Grace Pierce, who bears the title of Captain, will demonstrate to the delegates and visitors to the coming convention that the drill team of Holly Society is the "ideal" team, and that Holly Society is the banner society of the organization.

In my next I will give you an account of my travels in the South.

C. A. WILSON.

Second Vice Grand Master.

Since my last letter I have devoted several days meeting with the Joint Protective Boards of the N. Y., N. H. & H. R. R., and the Long Island R. R. The members of these Boards are to be congratulated upon the manner in which they handled their grievances, and it is such Boards as those that bring the protective feature of our organization into prominence.

After completing my work with those Boards I went to Philadelphia and held a meeting with Lodge 75. This lodge is in good condition and I had the pleasure of presiding over one of the most interesting meetings that I have held in many a day. This lodge has an excellent corps of officers and they are complying strictly with the law in the performance of their duties, which is to be highly commended. Bro. John E. Husted, the popular Master, is deeply interested in the future welfare of the lodge, and I trust that his administration will be the most successful one in the history of Lodge 75. The membership should be congratulated upon having a brother who is so able and earnestly interested in the welfare of our organization. Bro. P. A. Lynch, who is Secretary, is a credit to the organization and is performing his share of the labor and responsibility. Bro. John J. Carr, Treasurer, is to be commended for his efficient service and able advice and counsel. Bro. George W. O'Malley is looking out for the interest of the members, and for his conservatism, coupled with his influence, the Protective Department is in safe hands.

March 26th found me in Greenfield, S. C., where I organized Paris Mountain Lodge 343 with twenty charter members. I am deeply indebted to Bro. W. R. Linton, Secretary of Lodge 329, of Spencer, S. C., for his assistance.

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From Greenville I went to Nashville, Tenn., and organized Silver Point Lodge 100, with ten charter members. If there ever was a place where an organization is required it is Nashville. I trust that the seeds of brotherhood are planted deep in the hearts of those members, and that the banner of our organization will continue to float in the breeze of this section of the country, where it is so much needed, and that the betrayers of our organization in days gone by, who have used their influence to discourage and disrupt the lodges in this city will have no influence with those members who have proclaimed that Lodge 100 is there to stay.

After completing my work in Nashville I went to Tuscumbia, Ala., and held a very interesting meeting with Lodge 279. The initiatory ceremony was conferred upon two candidates, which contributed to the occasion. Bro. W. L. Farr, Master, is a great credit to this lodge, and his valuable services should be appreciated by the membership. Secretary Bro. J. W. Bennett is doing all he can to encourage the members of the importance of a thorough organization.

Bidding them good-bye, I made my way southward, working in the interest of the Brotherhood in places where there is no organization, with a view of establishing lodges wherever it is possible to do so. In my next letter I will advise you what success attended my efforts.

TIMOTHY SHEA.



Third Vice Grand Master.

Of late there seems to be renewed activity on the part of our members in the work of the Brotherhood. I appreciate every effort that is being put forth to help make our Order what it should be. If there ever was a time when we should work to make the Order stronger, numerically and financially, it is now. Some time ago I predicted that we would reach a membership of 50,000 by the time we meet in Buffalo, N. Y., and from the way things look now we will go beyond that number.

The splendid work that has been done by the Joint Protective Boards has had much to do with the increase in membership. An increase in pay with a shorter work day will have much to do with the prosperity of any kind of a labor organization.

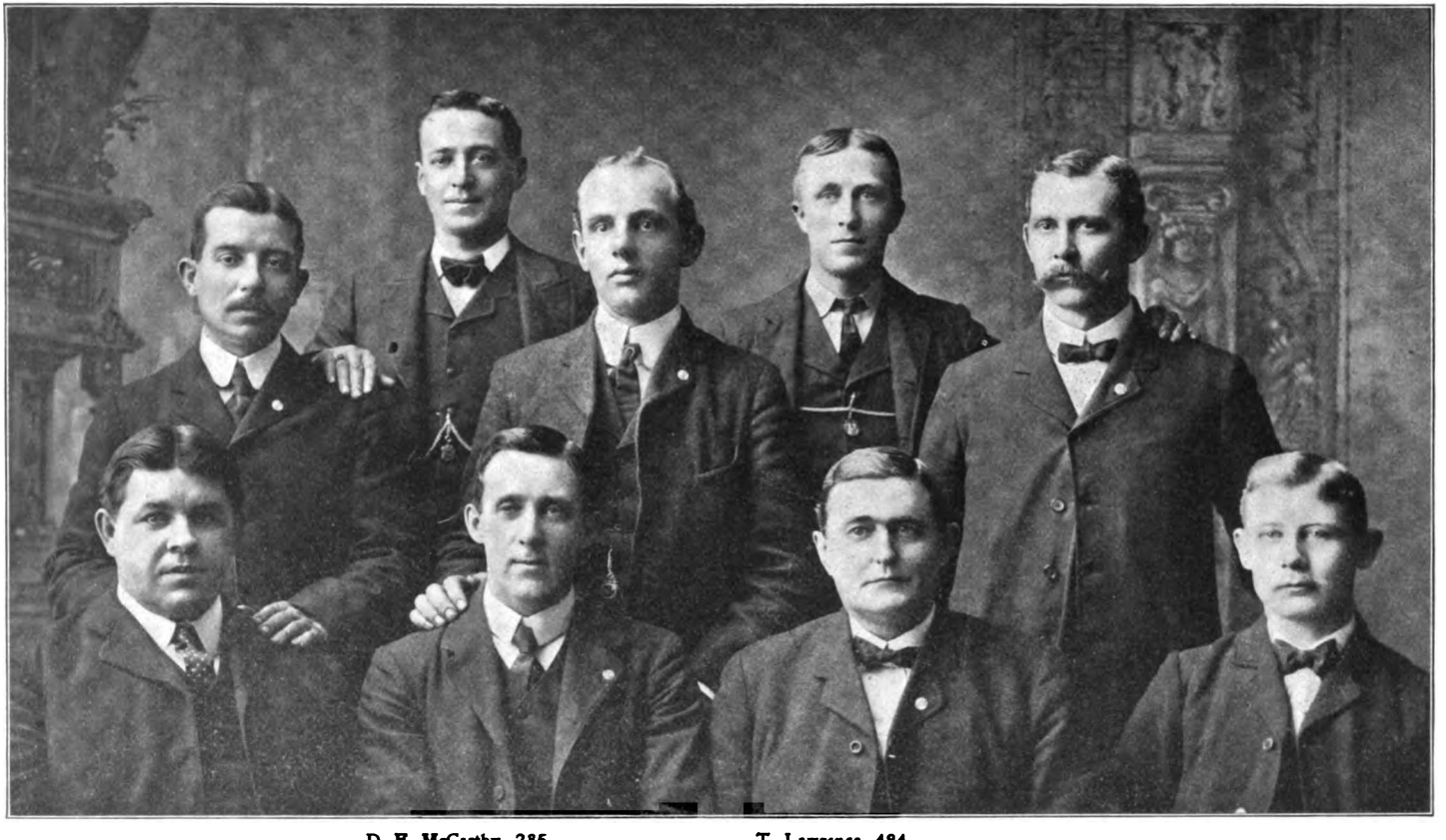
It has been a pleasant duty for me to represent our worthy Grand Master in several instances of late in making arguments on the wage question. The meeting with the Joint Board on the Southern Pacific (Atlantic System) resulted in much good to the members on that railway. It can not be denied but what a splendid scale of pay is now in force on that line, and only will the introduction of larger power and the deranging of present conditions make it necessary to ask for changes to be made that will better compensate the firemen for their labor. The Joint Protective Board of this system of road deserves great credit for what it did to help make the lot of the enginemen easier. Bro. Barr, of San Antonio, makes an excellent chairman, and Bro. Hartig, of Houston, a good secretary. These two brothers were ably assisted by Bros. Wagner, of New Orleans; Barksdale, of Beaumont; Wirth, of Del Rio, and Gilbert, of El Paso. They were zealous in behalf of those whom they represented, and I can speak in the highest terms of their work.

I took a trip to Galveston and had the pleasure of meeting with the members of the Gulf, Colorado and Santa Fe Board, of which Bro. Chas. Rogers, of Cleburne, Texas, is chairman. This Board made a good wage schedule with their management, and all were well pleased. The work of the two Boards that I have mentioned will live long in the history of the Southwest and will do much to help the man who makes the steam. Every true and faithful fireman deserves good, kind and generous treatment in everything that he does, and I am sure that the rank and file of our membership on these two roads will be pleased with the work of their committees.

While in Houston meeting with the S. P. Board, I took an evening off and met with Lodge 146. This is one of our good lodges in Texas. The lodge is made up of hard working members, and great credit is due them for the splendid condition of their lodge. I had often attended meetings of 146 before and enjoyed them, but none quite so much as the last one. My only hope is that I can meet with them again soon.

It seems almost impossible to hold a meeting with 506 on account of the way the members are situated, always on the road, and not a great many of them, therefore it is a hard matter to get a large attendance at any time. I always try to give them some of my time when in Houston. Bro. Mitchner always does all he can to help me out whenever I make his lodge a call. I appreciate his

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D. F. McCarthy, 285 — T. Lawrence, 494

J. McComb, 478 — C. E. Sartoris, 474 — A. W. Adams, 73

A. P. Kelley, 284 — A. L. Clifford, 57, Secretary and Treasurer — T. Shea, 2d V. G. M. — R. Furfey, 149, Chairman

JOINT PROTECTIVE BOARD OF THE B. L. F., N. Y., N. H. & H. R. R.

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kind help and always look forward with a great deal of pleasure to meeting him.

The stop at Denison, Texas, was fruitful of good results, as the brothers decided not to divide this lodge, something I would not liked to have seen done. Lodge 8 is one of the largest lodges west of the river, and among the best, and to have made two lodges out of it would, in my opinion, have been unwise. This lodge has been in existence for many years. and has made good the needs of her members time and again, and can and will do it in the future.

I met with Lodge 164 at New Franklin, Mo., and had quite an interesting meeting. While not as large in membership as some of our Western lodges, this is just as good as any of them. Lodge 164 has many old-timers in her ranks, and that goes to make her good. My wish is that I will have an opportunity to return to New Franklin at an early date and hold several social sessions with them.

A long time between trips, but I managed to hold a special meeting with Lodge 440, at Monett, Mo. I enjoyed myself very much on that occasion, and will say in behalf of 440 and her members that they are all right. Lodge 440 has among her members many who have belonged for years and who have taken interest in the lodge to that extent that she is among the best.

The stop at Pittsburg, Kan., though not as long as I would like, was profitable just the same. A good meeting was held at which time many questions of importance were discussed. This lodge has undergone many changes since her organization in February, 1897. I have only words of praise for the way in which the work has been handled, and the splendid condition the lodge is in at the present time. It might be well if every lodge took the interest that Lodges 440 and 489 do in the welfare of their members, and I hope they will keep up the present good work.

It will be my good fortune to put in a new lodge at Jefferson City, Mo., in a short time. This lodge has been made necessary by the change of division points from Sedalia to Jefferson City.

There are many new lodges in sight now, and I hope to get them organized as soon as I can reach them. There is going to be no let up to this work at all. It grows more every day, and why should it not grow, as the Brotherhood is needed to help the man who can not help himself, though if he could help himself without the aid of others he would? But in this day and age a man whose salary is $75 a month has a hard time to go it alone, and do business with a man who is getting that many dollars per day, and I have heard of some who came near getting that amount per minute. Organized labor is to the poor workingman what organized capital is to the moneyed man. Both are here, and we must meet the conditions as they arise, and do the best we can to settle all matters peaceably. I know it can be done where there is a disposition on the part of both to be fair. Oftentimes it is a case of stubbornness more than anything else that causes the breach to widen, instead of coming together and settling by peaceable methods matters of great importance.

I again wish to say that the outlook for the Brotherhood was never brighter.

CHAS. W. MAIER.



Fourth Vice Grand Master.

Leaving home March 1st, I held a meeting with Lodge 66 which was well attended, and at which two were added to the rolls of membership. This lodge is doing well, and when business on the road will allow the membership will be greatly increased. Bros. Marshall, Bleekman and Smith are looking after its interests.

I held a meeting with Lodge 69 which was fairly well attended, as members are constantly on duty, Bro. Dowell, Chairman of the J. P. B. of the Grand Trunk System, and that respected member, Bro. Philips, being present. I went to Carleton Junction to examine the disability claim of Bro. Oattes, of Lodge 81, but he had gone to his reward previous to my arrival.

I held a splendid meeting with Lodge 518, at which several members were present from 81, 172 and 335. Three candidates were initiated. Going to Ottawa, I met several of the members from Lodges 172, 81 and 335, with whom I had a conversation on matters relating to the welfare of the Order. I believe there are good opportunities to establish a Ladies' Society here in the near future. I stayed over in Montreal a day to meet with the C. P. Divisional Board, who were about to meet. From there I went to Richmond and held a meeting with 118. This lodge, though small in numbers, have the good of the Order at heart.

At Island Pond, the members being on duty, I could not hold a meeting, but found Bros. Stott and Foss having a watchful eye over their members, and

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keeping Lodge 46 in good standing. Bro. Foss had the misfortune to be confined to the house with a badly sprained ankle.

My next stop was at Portland to visit Lodge 4. I found all the members very busy, on account of which lodge work had been neglected, but I believe when the business on the road is not so brisk this will be one of the banner lodges. Bro. A. E. Dennison, one of its charter members, is just as enthusiastic as ever in the work, although residing in Mud Town.

I went to Bangor and held a meeting with Lodge 514, which I found in good standing, although the lodge had been at great expense through its sick benefits. While at Bangor I met the Bangor and Aroostock Federated Board, which, through its united efforts, succeeded in getting a favorable schedule for each one of the four organizations represented.

I met with Lodge 485, in Boston, at the regular meeting. This lodge has a membership of 400, and is presided over by Bros. Hale and McGregor, who keep the boys in line in the lodge room, as well as on the Protective Board. Their lodge room is a model, and the officers are so well up in their work that rituals are not a necessity.

At Nashua, I met several of the members of Lodge 573, and found their membership increasing rapidly. The lodge is in good standing and is ably presided over by Bro. Twichell. From there I went to Worcester and arranged a meeting at Bro. Hammond's house. This is an up-to-date lodge, the interests of which are looked after by Bro. Hammond.

Not having received sufficient notice, I was unable to hold a meeting with Lodge 478, but found Bro. Murphy working as hard as ever to assist the Brotherhood, and from whom I secured some useful information.

At Taunton I held a meeting with members of Lodge 474. This lodge is a credit to the organization, and is ably presided over by Bro. Freeman.

My next stop was at New London, where I met with Lodge 608 and had a pleasant meeting. Some protective board work would greatly increase the membership of this lodge.

At New Haven I met that congenial and respected standby, Bro. Kelly, who looks after the interests of Lodge 284, and presides over a membership of 200. "May his shadow never grow less."

At Danbury, I met with Lodge 493 in regular session. I found this lodge in good condition, and each member doing his share to increase the membership.

I held a meeting in Hartford with some of the members, through whom I found the condition of Lodge 285 to be first-class in every particular, that old war horse, Bro. Osmund, being very prominent.

While at Springfield I held a good meeting with the members of Lodge 307. This lodge is up to date and prosperous.

At Merrick I had the privilege of meeting several of the members of Lodge 563. This lodge sets an example that may well be followed.

Lodge 549 deserves great credit for the good condition it is in, considering the short time it has been organized, and I would not be surprised to see one of the Brotherhood prizes go to this lodge for increased membership.

I met with some of the members of Lodge 410, and found them doing business at the old stand. I believe this lodge has a good future before it. Bro. Pierce, who ably represented this lodge at the last convention, had just suffered a bereavement in the death of his father-in-law. Bro. Joslin keeps control of the funds of this lodge.

I held a union meeting in Rutland, at which several nonunion men were present, and I trust the meeting will bear good fruit. I also held a special meeting with Lodge 353 and initiated one candidate.

My next stop was at Bellows Falls, where I held a meeting with Lodge 365. This lodge has a bright future before it. From there I went to Concord, where I held a good meeting with Lodge 306. This lodge is too well known through its active membership for me to make any remarks. Suffice it to say that Bro. Frye, as Collector, is the right man in the right place.

I held a meeting with Lodge 461, which is composed of active Brotherhood men, with Bro. Bailey as an exemplary leader.

This being my first trip through this portion of my territory I was pleased to see the lodges in such good standing. The members were very active in furthering the interests of the organization, and a brotherly feeling exists throughout. The immense amount of traffic on the various railroads has frequently prevented the members from attending lodge meetings, and the officers from fulfilling their duties. This will, however, be remedied as soon as the opportunity presents itself. Everything points to a large increase in membership during the next three months, as in most instances all the eligible men have been promoted to the right-hand side, and those taking their

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positions are not, as yet, eligible for membership.

I would like to see a vote taken through the organization to ascertain how many regularly appointed engineers there are who are members of our Order. My experience leads me to believe that nearly one-half of our members are engineers at the present time. If such is the case it would render us valuable assistance in looking after the welfare of our engineer members.

If any of those doubting the benefits of belonging to an organization such as ours could have accompanied me to the house of a deceased brother, and witnessed things as I did, and seen the active interest taken by our brothers to relieve the distressed widow and child, also taking upon themselves the full responsibility of the burial, which was largely attended by members of surrounding lodges, they would have seen for themselves the great benefits to be derived from belonging to our Brotherhood. We can not afford to be untrue to an organization seeking to do so much good for those whom we have promised to protect.

E. A. BALL.

Correspondence

LODGE 198—(*D. J. Millar, Massillon, Ohio.*) Maple City is once more called upon to mourn the death of a brother, Wm. S. Yarnell, who died at Wauseon, Ohio, March 5th. He was a victim of that monster, consumption. It has been eight months since "Billy" was able to be at his post, that of engineer in the Toledo yards of the W. & L. E. R. R. Yet, when brothers or friends called to see him he assured them that it would only be a short time until he would be with them at work on the road again, and was very sure that it would not be longer than until warm spring weather came. His home was in Toledo, Ohio, and his remains were taken there for burial. "Billy's" hopeful and courageous disposition, and his sterling and industrious habits were life examples that might well be imitated by many, as they were surely right. He was honest and true to a friend, and never had ill to say of his enemies, which were very few. He leaves a wife, but no children, to mourn his loss. Suitable resolutions were adopted by Maple City Lodge 198, and our charter is draped in mourning for thirty days in remembrance of our brother.

The boys of old Maple City would be only too glad to have one or more of our Grand Officers, especially one of our Vice Grand Masters, call upon us. We surely are not so much in the wilderness that we can not be found, and we can read in their reports of their being almost every place else except to see Lodge 198. I think that every lodge is entitled to at least one visit every year from a Grand Officer, and if they will come and see us we will try our best to amuse them with at least one candidate, and in other ways as best we can.

LODGE 466 — (*Member, Dennison, Ohio.*) Lodge 466 is doing grand work. On March 18th we held a special meeting and eight candidates were initiated. The work our grand old goat did was something fine, and if you don't believe it was, ask Bros. Hamilton and Tipton. We have about twenty-five applications and intend to take them in as fast as possible. It has been a long time since Lodge 466 had a special meeting, and every one felt as though he had a duty to perform. In the evening a delightful social was held in the lodge room. We extended an invitation to the B. of L. E. and the G. I. A. to the B. of L. E., who are both famous for their hospitality and ability to entertain. This one evening goes to show what a help and inspiration it is to have our wives, mothers and sweethearts interested in all that concerns us, and who are always planning surprises.

In the absence of our Master, Bro. Ollie B. Hays, Bro. Edward Englehard was master of ceremonies, and he performed the duties in a very efficient and satisfactory manner. After several selections of instrumental music the chairman introduced our well-known editor, Mr. W. A. Pitinger, who delivered the opening address. This was followed by a recitation by little Louise Englehard, which was very much enjoyed by the audience. Miss Anna McFarland sang a solo, with Miss Mae Quirk at the piano. The next number was a piano duet by Bros. Harry Walcamp and John Jones. Maurice V. Brown, engineer, and J. N. Schoonover, of the roundhouse, made short but interesting addresses.

After a short season of social intercourse supper was announced, and the crowd repaired to the room below, led by Bro. Scott, which marched to the music

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furnished by Snyder's Orchestra, where Roney and Smith, the popular and up-to-date caterers, served a fine supper.

It is plain to be seen that Bro. E. R. Smith is a bachelor, by the justice he did to the chicken, pie and cake. After supper every one joined in dancing, and at the hour of midnight all dispersed, sorry to think the evening had passed so soon.

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LODGE 582 — (*J. A. Allen, Muncie, Ind.*) Lodge 582 is nearly two years old and is coming to the front. It is made up of a good set of boys employed on the Panhandle and C. R. & M. railroads, all good Brotherhood men. Our Secretary, Bro. J. P. Harris, is a hustler and is always ready to meet with the boys. Our Master, Bro. Harry Stewart, is also doing good work. Our goat is kept very busy taking in new members, and we will soon reach the 100 mark. We would like to have one of our Vice Grand Masters visit our lodge, as we would certainly make it pleasant for him.

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LODGE 195 — (*Member, Montpelier, Idaho.*) Lodge 195 has awakened from one of those short naps which it has been in the habit of taking, and has admitted several new candidates. Our joint board has returned, and having conferred with the general officer of the system gave us a little boost in the line of wages. Every little helps. One of our Grand Officers was out this way some time ago and, as business was rushing with him, he rushed by the door and failed to call on us. Nevertheless, the latchstring always hangs on the outside and we are pleased to have anybody call, whether a Grand Officer or a visiting brother.

Business has been exceedingly good and quite a number have been promoted from the left-hand to the right-hand side of the cab, among them being our Master, Wm. Herzog; Local Chairman, A. G. Preston; Treasurer, Fred Lintz; and Secretary, James Clark. We all give them our best wishes for success. This moves all the boys up the line quite a bit. By the way, our Past Master, Hyram Crane, seems to hold his head rather high, but guess it's on account of being papa to a fine boy. Our Chairman of the Joint Board wears a broad smile these days because there is a bran new girl at his house. Cheer up, Bro. Hughes; after a storm there is always a calm. Sunny days are coming by and by. We are looking forward to the arrival of the new engines, which are compounds.

LODGE 566 — (*Member, Fresno, Cal.*) We are still doing business at the old stand, and are taking in members at every meeting, and enjoying prosperity in every way. Our goat is getting plenty of work, and the prospects are that he will be kept busy for some time, as we have several of the boys waiting for a chance to try their luck in riding the goat.

Our brothers are taking a better interest in lodge meetings, and a warmer feeling of brotherly love exists, as we all see that "in union there is strength." We received a new schedule from our officials which went into effect the first of January, and it gives all the brothers renewed courage.

The brothers on the Valley Division of the Santa Fe have a bright future before them. On the Valley we do not realize the hardships our brothers have to contend with while shoveling coal into a large Compound or Decapod, with the weather from ten to twenty degrees below zero, as we have small engines and all are oil burners, and in as delightful a climate the year round as can be found anywhere. Our greatest trouble is in keeping awake, as a slight variation in the flow of oil will allow the steam to fluctuate very rapidly.

We would all wish very much to have a visit from our Vice Grand Masters, as they have not visited us for some time. Brothers, let us all be a committee of one to impress upon each other the duty we owe to the lodge, and to attend meetings whenever we can, even if we do have to sacrifice a little sleep or miss some engagement we might postpone. Lodge work will not prosper unless we all take an interest in the lodge. At times lodge work is hard and very discouraging, but then is when we should put forth renewed courage and use every effort in our power to build up the lodge, and not let it cease for one moment. A lodge once down takes a long time to build up again. Newly initiated members should be encouraged to attend meetings whenever possible, for in the beginning is laid the foundation for after years. Success to all.

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LODGE 304—(*Member, Argenta, Ark.*) I have been a member of the Brotherhood of Locomotive Firemen for something over a year and have never missed being on hand but once since I have been a member. Now, if any of our readers can give a remedy that will cause the brothers to attend meetings when they have no grievances or want something, I will see

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that he gets a leather medal. I, for one, would like to see a better interest taken in the work. Our all depends largely on the way we attend our lodge meetings and the interest we take in them. Lodge 304 has a membership of about ninety or upwards, and it looks like we could have a wide awake lodge but, alas! how many nights have a few of us gone up to the lodge room and failed to get a quorum. We have applications three months old that, for some cause, have not been acted upon. With such a state of affairs the future does not look very bright. Now, if some brother will just give us a remedy so we can hold regular meetings and have, say one out of every five members attend, great will be his reward.

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LODGE 81—(*J. J. Douglass, Ottawa, Ont.*) It is with feelings of deepest regret we once more drape our charter in memory of a brother, James Oattes, who departed this life at Carleton Place on March 3d, after an illness of nearly two years from that dreaded disease, consumption. He left to mourn his loss a loving and devoted wife and little daughter, who have the sincere sympathy of the members of Lodge 81 in their irreparable loss. Bro. Oattes was a very valuable member, who was always ready to give a helping hand whenever required. The funeral was conducted under the auspices of the B. of L. F., the brothers of C. P. R. Lodge 518 kindly taking charge until we arrived, for which I desire to thank them in behalf of Electric City Lodge 81. Personally, I wish to thank Bro. Steel, Master; Bro. James Fanning, Past Master; also Bros. P. McClaren and Hawkins and, in fact, all the brothers in Carleton, who proved themselves loyal Brotherhood men. The funeral was one of the largest seen in Carleton for some time, which showed the high regard in which our late brother was held.

I have been requested by our late brother's wife to extend to the brothers of Lodge 518 and 81 her heartfelt thanks for their timely assistance during her late husband's illness, also for the able manner in which the Brotherhood conducted the funeral services. While in Carleton I had the pleasure of meeting our Fourth Vice Grand Master, Bro. E. A. Ball. Lodge 518 held a special meeting, having three candidates in waiting for Bro. Ball to confer the degree of membership on, which he did in a manner both instructive and interesting, and I do not think those new brothers will either regret or forget it. We were very sorry that Bro. Ball could not remain with us for the funeral, but hope to meet him soon again under more pleasant circumstances.

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LODGE 8—(*Member, Denison, Texas.*) We are doing business at the same old stand, and have as good and efficient set of officers as can be found. Never a month goes by but that some new candidate travels the sandy desert with "Billy" as a partner. Billy is well kept and well trained, and after the exercises are over the one who forms his acquaintance will say "he sho' is ah holy terror."

So far, Texas railroads and Texas railroad brotherhoods have gotten along quite well, with a few exceptions, of course, but recently the great State Legislature, made up mostly of "two-bit" lawyers, passed the anti-trust law by recommendation of the governor. This law includes labor unions, and prevents them from combining together as skilled laborers, or to attempt to control prices of skilled labor. This law is said to prevent corporations combining to regulate prices, also skilled labor must not combine for the same purpose, but accept that which is offered, under penalty of heavy fine and imprisonment. As laws are made they seem to be aimed at the laboring man, either directly or indirectly, and such will be the case for time to come, unless they rise up and assert their rights at the polls. As American citizens they should secure direct representation in all legislative bodies. There are men who perform manual labor each day at almost starvation wages, who are just as able and competent to enact just and competent laws as any lawyer in the land. One-half of the lawmakers of the State of Texas, who are elected to represent the people of the State—of which 90 per cent. are laboring people—while at home will not average fifty cents per day for the entire year. When a representative of a labor union approaches them for a law for the betterment of skilled labor, where one who has served for years on a "pittance" may be able to make something like $2.50 or $3 per reasonable day, their eyes bulge out like a saucer. This is a fortune to them in a single day, and is considered by them extravagant. This is taught them by a gentleman representing the other side, who spends a few cents each day on them in the way of "cabbage leaf" cigars and "white mule" whisky.

Let us not get discouraged, but press

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on. There are enough of us to control the affairs of government if we will only do it. Let us vote for men and not for party. Vote honestly, sincerely, and for the betterment of the human race, regardless of the cheap politician, who does not deserve the respect of the most ignorant and blackest negro on the face of the earth.

Let us work for the upbuilding of the B. of L. F., the grandest and noblest labor and insurance order on the face of this great globe. We make mistakes; there are none perfect—no, not one—and if at any time you think the officers or members are not doing just the right thing, stop a moment before condemning them. You have faults; so have they. You are not perfect; neither are they. You may do wrong; so can they. Let us reason together for our own good, and see if we can not improve the Order, not to condemn and find fault. Everyone can do some good if they will only try. Let seniority, brotherly love and affection prevail among us all. Don't try to get the best job, simply because you are too lazy to "hit the ball" as the "other feller" who has a good job. Work until your time for advancement comes. Don't be always trying to get the best thing the next week after you have been made a fireman; then if you don't get it, go up town, stand around and drink something that you ought not to, and "cuss" the local chairman and officers of your lodge. Most of the good jobs are worked for, and not donated. I, for one, am in favor of strict seniority, regardless of the feelings of anyone.

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DEATH OF BRO. R. W. TRAVERS (*Mrs. M. G. Foster, Eureka, Nev.*) I write to inform you of the death of my son, Ralph William Travers, who departed this life at Eureka, Nev., March 5, 1903, after an illness of nearly three years, from locomotor ataxia. He was a member of Lodge 98, Brotherhood of Locomotive Firemen, and was employed for nearly four years on the Southern Pacific Railroad as fireman, and came home December 2, 1901, where he remained to the time of his death as stated above.

The funeral took place here under the auspices of Beatific Lodge, Knights of Pythias, of which he was a member. He leaves two sisters, Mrs. M. L. Lee and Miss Grace Travers, to mourn his loss. He was a native of Eureka, Nev., and was aged 27 years, 10 months and 25 days. My son was well known to the railroad men between Ogden and San Francisco.

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LODGE 552—(*Member, Tyrone, Pa.*) Oh yes! Right here we are again, just as we said in our last communication, that if the brothers got to work and stood side by side you would soon see quite a change in 552. Our last meeting was one of the best meetings we have held for some time, although quite a number of the brothers were prevented from attending the meeting on account of a wreck, which took the wreck crew some time before they could get the track clear so as to allow trains to proceed, and at the same time there was a wreck at the other end of the division, but fortunately no one was hurt.

Our athletic goat got several good feeds of shoe pegs and carpet tacks last week, therefore he was in fine trim for the five brothers who undertook to ride astride his back at our last meeting. Bro. J. W. Weaver, the first doomed candidate, says some of the engines are very rough, but as to Mr. Billy Goat's roughness there is nothing his equal. Next came Bro. E. B. Walizer, and as he is somewhat different in stature, and the goat was enraged from his first attack, Bro. Walizer said it was a mighty rough ride. Then came Bros. L. H. Alberts, W. P. Hoffman and G. G. Kinkead, who claim they got their money's worth.

Since November 15, 1902, we have initiated thirteen, dropped three, have two ready for initiation, and eight in view. If any lodge can beat this we would like to hear from them. Brothers, the probabilities are that in the near future we may have our First Vice Grand Master, C. A. Wilson, with us, and I assure you it will be to your interest to make an effort to attend the meeting, as Bro. Wilson delivers eloquent lectures and displays fine moving pictures.

The Phillipsburg boys are a generous, jolly, good-hearted set. We have naught but good to say of them. In fact, we think them the most benevolent set of "hog" firemen to be found in the employ of the P. R. R. Co.

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LODGE 301—(*Z. J. Blake, Lyndonville, Vt.*) We are still doing business, though not at the old stand, and it is on a very small scale. It is not, however, because we are short of material, but is owing to the removal of nearly all the power on our division from Lyndonville to New-

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port, Vt., and we are waiting an answer from Grand Master Hannahan which will allow us to move our lodge and equipment and permanently locate the same at Newport. Grand Master Hannahan has already granted us a dispensation so we can initiate candidates, and we have been taking them in as fast as they came along, but otherwise business has been neglected, as you will readily discover if you follow the course of our Fourth Vice Grand Master, who visited us April 2d. And say, boys! he is all right. Bro. Ball took charge of the meeting and initiated one candidate, and you don't want to come around and try to make any of the members of Lodge 301 believe that the Eighth Biennial Convention made any mistake in the courtesy extended our Canadian brothers in the selection of Bro. Eugene Ball to serve as a Vice Grand Master. Bro. Ball gave us a very interesting talk and some timely advice, and as soon as we get located again we will go to work with renewed courage, so that when our Fourth Vice Grand Master comes again we hope to convince him that his first visit to Lodge 301 was not without results.

* * *

LODGE 274—(*Member, Clifton Forge, Va.*) At a regular meeting of Lodge 274, held in Masonic Hall, April 8th, we were visited by our First Vice Grand Master, C. A. Wilson, who was with us two days. He pointed out the weak spots in our lodge and again enlightened our minds with the secret work of our benevolent Order. He spoke of the pleasure it gave him to be with us, and the courtesy shown him by our Master and brothers, also of the delightful walk to the roundhouse with Bro. Mitchell. Bro. Mitchell introduced him to our ways of railroading in this section, made him familiar with our different classes of engines, especially the "G 7," and pointed out to him the beautiful scenery that surrounds our beautiful city of magnificent distances. Bro. Wilson promised to meet with us again in a month or two and give us an entertainment with his magic lantern, with which he gives a reproduction of the life of a railroad man from the cradle to the grave. We live in hopes to have him with us again as soon as it is convenient for him to come. Bro. Wilson is a strong speaker, and a loyal brother to his office. All the brothers who met him while here loved him, and parted with the words, "May we meet again soon."

LODGE 153—(*Member, Ft. Scott, Kan.*) I take pleasure in informing the members that we are a band of brothers who are striving to help the good work along, if we have been silent so long. We are a happy band of about eighty members, who have now to contend with the big Vauclain Compounds which have just come to our territory. The Frisco System, from Springfield to Kansas City, has installed these big ten-wheelers. They take first rate with the boys, considering the mills we have had. It was hard for us to give up our little eight and ten-wheelers for these monsters, but the engines changed when the old K. C., F. S. & M. was absorbed by the Frisco System, and now the Rock Island is dealing for the Frisco System. What next?

We have some very good meetings and have a flourishing Ladies' Society in connection with our lodge, which is in good working order and has a good membership. Some evenings after lodge, when we start to leave, we find to our astonishment, the ladies in the kitchen—which is in the rear of our lodge room—have prepared a fine lunch for us, and we make the surprise work both ways. When they have their meetings we surprise them also with a lunch. We think the Ladies' Society is a great help to the firemen, especially when they work in harmony with each other as we do here, and the joint meetings are out of sight. Don't you think so? We had a victim at our last meeting, and we made a first class fireman out of him before we got through with him. At least he said he felt as though he ought to be one now, and the boys thought that he could do a "battleship" justice now.

We have lost some of our good and most reliable members on account of them going into the Engineers' Brotherhood, but our loss is their gain. Of course, it is our aim to some day be on the right-hand side, and we can't expect to keep them always. We had a sad occurrence to befall a member of our lodge. February 22d, Bro. Ed. Gilbert lost his right arm, and Engineer Fred Ficher was killed on passenger train No. 104. Some one opened a switch on a spur and derailed their engine. Bro. Gilbert had just been promoted to the position of engineer about three weeks prior to this accident. It was claimed that he was the youngest engineer in the State, if not in the West. He was not yet 21 years of age. It was sad indeed to behold him stricken down in the prime of life, and

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when he had just gained the trophy he had worked for so many years, in such a brutal way by some inhuman creature who would not be fit to associate with the demons in the lower regions.

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LODGE 314—(*C. R. B., San Bernardino, Cal.*) Golden State Lodge 103 of the Ladies' Society was organized on April 2d by the ladies of Flower of the Desert Lodge 5. On the morning of April 1st, just as the sun was appearing, in came train No. 7, carrying sisters of Lodge 5, L. S. worthy President, Lennie McClure; Past President, Sister Kellelee, and Sister Lee, to organize our mothers, wives and sisters into a lodge of the Ladies' Society.

Well, they must have done an excellent job, and the goat was long winded, as they started in at 10 o'clock a. m., and did not get through until after dark. The L. S. goat must be more difficult to ride than is the B. of L. F's., as several of our wives are hardly able to attend to their household duties. We thank the sisters of Flower of the Desert Lodge for their kindness in coming 180 miles to organize our helpmate, also our Grand President, Sister Sargent, for her kind help and advice. Golden State Lodge 103 has twelve charter members, and has a promising field to work on in the future. Officers were elected and installed as follows: President, Mrs. Lizzie Fabun; Vice-President, Mrs. Edith Jensen; Secretary, Mrs. M. A. Bollen; Collector, Mrs. P. Clark; Treasurer, Mrs. A. Cleveland; Chaplain, Mrs. C. Bond.

The afternoon of the day set for the departure of the ladies of Lodge 5, L. S., was spent in a pleasant drive through San Bernardino, Smiley Heights and Redlands. The two brothers who agreed to go with the party acted as coachmen, and completed same with honors to their profession. We can testify that Sisters Jensen and McClure would not make very good enginemen, as they wanted to get out of the carriage every time a street car or motor was passed. Sister Lee had just arrived from the East, when it came to picking flowers on Smiley Heights, but it didn't work, as Mr. Smiley didn't see it that way. We are sure the sisters enjoyed themselves, as they promised to come again during our street fair in May.

Lodge 314 has 103 members at the present time, and two more candidates ready for initiation and one to be admitted by transfer card at our next meeting. During the past year we have increased our membership by getting fifty-four new names on our rolls, and still there are a few of the boys who ought to join the Brotherhood, but never mind, we will capture them yet.

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LODGE 530—(*Member, Haileyville, I. T.*) Lodge 530 is the oldest lodge on the C. O. & G. R. R., and no lodge has a more faithful set of members. Many difficulties have been met with in our pathway, but perseverance is overcoming them one by one. Things have changed as much here in the past twelve months as on any railroad in the United States. We should thank each and every brother for his faithfulness, and our management for its kindness. Several of the boys have been made responsible for the engine in the last few months, in fact, about all who could pass the examinations, and instead of hearing the boys talk of leaving they talk of staying. Bro. W. W. Burnett is one of our latest promoted engineers, and he can tell some great experiences already, on what he used to do when he was a fireman and how clean he kept his engine, the old 28. "Bill" is O. K., and an honor to any order, but Lodge 530 is full of this kind of material.

We have once more had the pleasure of a joint meeting with the L. S. to the B. of L. F., Oak Leaf Lodge 33. It has been several months since we met, on account of moving the lodges from South McAlester to Haileyville, the new division point. There was present the same old faces, with the addition of the new ones. Even Sister Stevens, one of the faithful ones, came all the way from K-a-n-s-a-s to meet with the sisters and brothers once more. There is always a pleasant time for those who are in the company of Sister Stevens. And the same old tables; it is strange the sisters will not forget those tables, always loaded with something that will make a tallow pot smile. All of our brothers are good handy fellows at the tables, except Bro. Martin, our Master, and there is something that takes his appetite at every joint meeting, and he is very timid about eating what he does eat. We hope to let you hear from Lodge 530 again, and to see a Grand Officer some day so that our new members may know what they look like.

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The Home Account.

The following donations were received at the Home for Aged and Disabled Railway Employes for the month of March, 1903:

B. of L. F. Lodges—20, $5; 48, $5; 64, $5; 82, $5; 123, $5; 142, $2; 150, $5; 210, $5; 211, $2; 252, $1.50; 254, $5; 265, $5; 273, $6; 297, $5; 314, $5; 327, $5; 377, $5; 462, $5; 481, $2; 493, $2; 502, $5; 523, $10; 566, $5; 611, $5; total	$110 50
L. S. to B. of L. F. Lodges—3, $5; 20, $2; 23, $2; 36, $5; 40, $5; 46, $3; 47, $2.50; 48, $5; 51, $5; 56, $5; 59, $2; 79, $5; 80, $2; 106, $5; 110 $5; 113, $2.50; 114, $5; 124, $1; 127, $1; 130, $2; 143, $2.50; 159, $25; 175, $2.25; total	99 75
O. R. C. Divisions	178 00
B. of R. T. Lodges	201 50
B. of L. E. Divisions	287 51
L. A. to O. R. C. Divisions	50 50
L. A. to B. of R. T. Lodges	78 50
G. I. A. to B. of L. E. Divisions	194 50
J. B. Wiley, St. Albans, Vt., no other clue	1 00
Postoffice Order No. 1728, no other clue	2 00
Mrs. O. R. Clough	1 00
No clue whatever	5 00
Grand total	$1,209 76

Miscellaneous.—L. A. to O. R. C. 154, 14 sheets; 200, 3 sheets; 4, 12 sheets; 168, 10 sheets; 139, 13 sheets, 12 pillow cases and 4 cans fruit; 91, box of fruit; 70, 6 sheets; 98, 6 sheets.

G. I. A. to B. of L. E.—167, 12 sheets; 177, 16 sheets; 53, 8 sheets; 233, 12 sheets; 246, 12 sheets; 51, 6 sheets; 274, 12 sheets; 19, 6 sheets; 253, 13 sheets and 21 cans of fruit; 96, 6 sheets; 225, 6 sheets; 194, 1 comfortable; 269, 1 quilt; 35, 12 sheets; 110, 1 quilt.

L. A. to B. of R. T.—179, 6 sheets; 128, 12 sheets; 53, 7 sheets and 26 pillow cases; 232, 6 sheets; 164, 4 sheets and 8 pillow cases; 58, 6 sheets; 40, 6 sheets. low cases; 161, 6 sheets; 70, 6 sheets and 12 pillow cases; 96, 8 sheets and 16 pillow cases; 141, 6 sheets; 70, 6 sheets and 6 pillow cases; 38, 8 sheets and 16 pillow cases; 134, 4 sheets and 8 pillow cases; 168, 6 sheets and 8 pillow cases; 125, 12 sheets and 12 pillow cases.

No clue.—20 sheets; 12 sheets; 40 towels.

Mrs. A. Banister, 2 sheets.

Note.—The 12 sheets credited to Mrs. C. A. Bradley were from L. S. to B. of L. F. Lodge 146.

Respectfully submitted,

MRS. T. B. WATSON,
Sec. and Treas. R. R. M. H.

Addresses Wanted.

Requests have reached this office to publish notices inquiring for the present addresses, or any information concerning the following persons. Information should be sent to the person specified in notice:

William Scammons.—Age about twenty-three years, tall, broad shouldered, dark complexion, and talks with a decided Eastern accent. Formerly fired an engine on the Maine Central Railroad. Any information as to his whereabouts will be thankfully received by P. H. Hurley, 513 S. Twenty-first street, Mattoon, Ill.

Harry Hall.—Was, or was said to have been a fireman or engineer running out of Leadville, Col., several years ago. A matter in which he may be interested. Kindly send any information as to present address to E. E. Donnely, Bloomington, Ill.

James Willoughby.—Left the service of the New York Central, at Buffalo, last winter. Was a member of Lodge 101, B. of L. F., but did not take a traveling card. Is about five feet eight inches in height, had brown hair, and was about twenty-three years of age. Any information as to his whereabouts will be gladly received by Arthur W. Hill, 176 Keystone street, Buffalo, N. Y.

Frank Allen.—Is a member of the B. of L. F. at Trinidad, Col. Was last employed on the Colorado and Southern Railroad out of Trinidad. Was formerly on the Mexican Central Railroad. A matter of extreme importance. Please send any information as to his present address to Tom Wilson, Engineer C. & S. R. R., 3124 W. Twenty-third avenue, Denver, Col.

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George Stickley.—About 5 feet 10 inches height, light complected, blue eyes and sandy mustache, weight about 100 pounds. Any one knowing his whereabouts will be conferring a favor by telegraphing the undersigned at his expense. Address, D. A. McMillan, East 223 Pacific avenue, Spokane, Wash.

C. D. Shook.—Was employed as an engineer on the U. P. R. R., at Denver, Col., until about February, 1902. Was a member of the Brotherhood of Locomotive Firemen. Anyone knowing his present address, kindly communicate with H. J. Shook, Indio, Cal.

* * *

Acknowledgments.

The following persons desire to acknowledge receipt of payment of claims, and to express their gratitude to the Brotherhood of Locomotive Firemen as an organization, and to the individual members for kindnesses and courtesies extended:

John McCaffery, Jersey City.

Mrs. May Goldtrap, McCook, Neb.

Mrs. Charlotte M. Pack, Homestead, Pa.

Katie McCabe, Fountain City, Wis.

Mrs. Mary Doehler, Blue Island, Ill.

* * *

Lost Traveling Cards, Etc.

This office has been notified of the loss of the following traveling cards, receipts, etc., and the request is made that all members be on the lookout for them. Should they be discovered in possession of persons not entitled to them, they should be retained and forwarded to owner or to the Secretary of the lodge which issued same:

Receipts of Patrick H. Hurley of Lodge 4.—Pocketbook containing receipts, paid up until June 30, 1903, have been lost. Anyone finding same kindly return to P. H. Hurley, 513 S. Twenty-first street, Mattoon, Ill.

Receipt of R. J. Ragland of Lodge 698.—Receipt for the quarter ending March 31, 1903, has been lost. If found, please return to J. K. L. Moody, Mer Rouge, La.

Lost on April 12th, between Logansport and Kokomo, Ind., a pocketbook containing one $10 bill, two $5 bills, a meal ticket on "The Main" restaurant of Elwood, Ind., a B. of L. F. Traveling Card for quarter ending June 30, 1903, bearing the name of C. F. Shera, also one engineer's annual pass over P., C., C. & St. L. Ry. Any information that will lead to the recovery of same will be gladly received by C. F. Shera, 1119 North A street, Richmond, Ind.

* * *

Balls and Entertainments.

Courteous invitations have been received at this office to attend the following balls and entertainments. The Grand Lodge force returns thanks and wish all an enjoyable and successful time:

Lodge 17.—Fourteenth annual ball, at Chadron, Neb., Monday evening, April 13, 1903.

Lodge 228.—Tenth annual ball, at Siegel's Dancing Academy, Scranton, Pa., Monday evening, April 13, 1903.

Lodge 300.—Twelfth annual ball, at the Armory, Michigan City, Ind., Monday evening, April 13, 1903.

Lodge 303.—Second annual ball, at Radeke's Hall, Kankakee, Ill., Monday evening, April 13, 1903.

* * *

Advertising.

The following advertisements appear in this month's issue of the Magazine. Our readers are especially urged to carefully look over the advertisements that we publish from month to month, many of which will be found very attractive and possessing considerable artistic merit. If any one should be in any way interested in anything that is advertised, kindly write to the advertiser, mentioning the Locomotive Firemen's Magazine. He would like to hear from you, and we want him to know that you saw his advertisement in our Magazine:

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The Silent Home

By Ed. E. Sheasgreen

I know a spot where is a home—
A silent home on templed hill,
Where, watching, ever stands a guard—
A white guard, motionless and still,
Forever keeping vigil
Above the sleeper there,
Forever pointing upward
As loved ones kneel in prayer.

I've seen the snows melt from this place,
The flowers bloom and o'er it die;
The autumn leaves around it swirl,
And snows again go drifting by;
Seen shadows o'er it playing,
Made by the sun or moon,
The ghostly ones of midnight,
Or those of drowsy noon.

No earthly din, however loud,
No loved one's song, no prayer, no tears,
Or changes that the seasons bring,
Or aught of human hopes or fears,
Will ever wake the sleeper
Who rests within its walls—
Will ever break the silence
That reigns within its halls.

But I, while passing back and forth
The highway near this guarded place,
Have learned that in this quiet spot
We all must rest from life's great race.
Here king from royal palace,
And beggar now a-roam,
The babe, the youth, the aged,
All find a silent home.

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Beneficiary Statement

OFFICE OF GRAND SECRETARY AND TREASURER,
PEORIA, ILL., April 1, 1903.

To SUBORDINATE LODGES:

The following is a statement of receipts in the Beneficiary Department for the month of March, 1903:

RECEIPTS.

Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.
1		63	147 50	125		187		249		311		373		435		497		559	64 00		
2		64		126		188		250		312		374		436		498		560			
3		65		127		189		251		313		375	84 50	437		499		561			
4	341 00	66		128		190		252		314	163 50	376		438		500		562			
5		67		129		191	151 25	253		315		377		439		501		563	131 00		
6	374 75	68	113 00	130		192	209 00	254		316		378	575 75	440		502		564			
7		69		131		193		255		317		379		441	130 75	503		565			
8		70		132		194		256		318	340 50	380		442		504	38 25	566	107 25		
9	253 00	71		133	175 50	195		257		319		381		443		505		567			
10		72		134		196		258		320		382		444		506		568			
11		73		135		197		259	75 50	321		383		445		507		569			
12		74	130 50	136		198		260		322		384	104 00	446		508		570			
13		75		137		199		261	50 75	323		385		447		509		571			
14		76		138		200	104 25	262		324	67 25	386		448		510	171 00	572			
15		77		139		201		263	115 00	325		387		449		511		573			
16		78	210 50	140		202		264	69 25	326		388		450		512		574			
17		79		141		203		265	249 50	327		389	109 75	451		513		575			
18		80		142		204		266		328	71 00	390		452	118 25	514		576			
19		81		143		205		267		329		391		453		515	83 25	577	49 50		
20		82		144		206		268		330		392		454	134 75	516		578	90 25		
21		83		145	280 25	207		269		331		393		455		517	75 00	579			
22		84	172 00	146		208	87 75	270		332		394		456		518		580			
23		85		147		209		271	94 00	333		395		457		519		581			
24		86		148	124 50	210		272		334		396	122 75	458		520		582			
25		87	94 00	149		211		273		335		397		459		521		583			
26		88		150		212		274	75 00	336		398		460		522		584	54 25		
27		89		151		213	189 25	275	281 00	337		399		461		523		585			
28		90		152		214		276		338		400	148 75	462		524		586			
29		91		153		215		277		339		401	238 75	463		525	69 75	587			
30		92		154		216		278		340		402	90 00	464		526	39 25	588			
31		93		155	145 50	217	142 50	279	73 00	341	213 25	403	57 00	465		527		589			
32	167 25	94		156		218		280		342	176 75	404	72 75	466		528		590			
33		95		157		219		281		343		405	150 50	467		529	153 00	591	39 50		
34		96		158		220		282		344		406		468		530		592			
35		97	182 00	159		221		283		345		407		469		531		593			
36		98		160		222		284		346		408		470	151 00	532		594			
37		99		161		223		285		347		409		471	36 25	533	63 25	595			
38	96 50	100		162		224		286		348	100 25	410		472		534		596			
39		101	271 75	163		225		287		349	293 50	411		473		535		597			
40	287 50	102		164		226		288	124 75	350		412		474		536		598			
41		103		165		227		289		351		413	38 75	475		537		599			
42		104		166		228		290		352		414		476		538		600			
43		105		167		229		291		353		415		477		539		601			
44		106		168		230		292		354		416		478		540		602			
45		107		169		231		293		355		417		479		541		603			
46		108		170		232		294		356		418		480		542	116 00	604			
47	276 25	109		171		233		295		357		419		481		543		605			
48		110		172	77 00	234		296		358		420		482		544		606			
49		111		173	171 50	235		297		359		421		483		545		607			
50		112		174		236		298	133 25	360		422		484		546		608	42 00		
51		113		175	316 00	237		299		361	90 00	423		485		547		609			
52	248 25	114	43 00	176	159 25	238		300		362		424		486	95 75	548		610			
53		115	42 50	177		239	156 00	301		363		425		487		549		611			
54		116	86 75	178		240		302		364		426		488		550		612			
55		117		179		241		303		365	72 00	427	66 50	489		551	122 25	613			
56		118		180		242		304	174 00	366		428		490		552		614			
57		119		181		243		305	71 25	367		429		491		553		615			
58	134 00	120		182	234 75	244		306		368		430	166 00	492		554		616			
59		121		183		245		307		369		431		493		555		617	35 00		
60	242 75	122		184	83 00	246	128 50	308	66 00	370		432		494		556		618			
61		123		185	88 00	247	279 00	309		371	109 50	433		495	62 75	557	160 00	619			
62		124		186	14 75	248	196 00	310		372		434		496		558	93 50	620			

Received during month of March $15,310.50

Disbursed during month of March, account Beneficiary Claims. { 19 @ $1,500 = $28,500; 2 @ 1,000 = 2,000; 1 @ 500 = 500 } $31,000.00

Respectfully submitted,

F. P. Sargent

G. S. and T.

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Beneficiary Assessment Notice No. 117.

To the Treasurers of Subordinate Lodges: PEORIA, ILL., May 1, 1903.

Dear Sirs and Brothers—You are hereby notified of the following deaths and disabilities:

Claim No.	NAMES.	Lodge No.	Death or Disability.	Date.	Cause.	Am't.	When Paid.
2396	C. A. Wamsley	19	Death	Dec. 18, 1902	Typhoid fever	$1,500	Mar. 9, 1903
2397	Elmer S. Pearce	344	"	" 24, "	Railroad collision	500	" 9, "
2398	J. W. Goldtrap	344	"	" 24, "	Railroad collision	1,500	" 9, "
2399	Earl P. Gray	465	"	" 24, "	Railroad collision	1,500	" 9, "
2400	R. C. Ingersoll	88	"	Jan. 1, 1903	Typhoid fever	1,500	" 9, "
2401	Rawson H. Cowee	353	"	" 2, "	Railroad collision	1,500	" 9, "
2402	James Fitzpatrick	353	"	" 2, "	Railroad collision	1,000	" 9, "
2403	Charles T. Wedler	109	"	" 4, "	Dropsy	1,500	" 9, "
2404	Arthur L. Catlin	207	"	" 9, "	Suicide	1,500	" 9, "
2405	Frank Jaggard	72	"	" 10, "	Diabetes	1,500	" 9, "
2406	William H. Dyke	418	"	" 16, "	Railroad accident	1,500	" 9, "
2407	William D. Doehler	511	"	" 19, "	Typhoid fever	1,500	" 9, "
2408	Harry S. Moore	287	"	Nov. 17, 1902	Railroad accident	1,500	Feb. 16, "
2409	William T. Peters	559	"	Mar. 31 "	Killed in South African war	1,500	Mar. 24, "
2410	Fritz Zimmerman	140	"	Aug. 9, "	Drowned	1,500	" 24, "
2411	Charles T. Safley	312	"	Nov. 11, "	Typhoid fever	1,500	" 24, "
2412	John Gilman	469	"	" 13, "	Hemorrhage of lungs	1,000	" 24, "
2413	Robert Pack	242	"	" 26, "	Falling from engine	1,500	" 24, "
2414	Frank B. Elliott	289	"	Dec. 3, "	Railroad accident	1,500	" 24, "
2415	William Bernhardt	149	"	" 8, "	Run over by engine	1,500	" 24, "
2416	John P. McCaffery	267	"	" 8, "	Struck by train	1,500	" 24, "
2417	Frank E. Goodwin	141	"	" 16, "	Struck by engine	1,500	Apr. 14, "
2418	Harry B. Johnson	242	Disability.	Oct. 29, "	Amputation both legs	1,500	" 14, "
2419	John Murray	149	"	Dec. 5, "	Locomotor ataxia	1,500	" 14, "
2420	Burton E. Barrett	6	"	" 12, 1900	Amputation of left arm	1,500	" 14, "
2421	Arthur T. Dinsmore	282	Death	" 25, 1902	Pneumonia	1,500	" 14, "
2422	Louis J. Marquett	289	"	May 26, "	Consumption	1,500	Mar. 24, "

Assessments for death and disability claims are hereby levied as follows: For each member whose name appears on the rolls of membership on April 30, 1903, (also for all members having taken a withdrawal or transfer card after April 1st, and for all members who died or were totally disabled since that date), carrying a Beneficiary Certificate of THREE THOUSAND ($3,000.00) DOLLARS you are required to forward the sum of FOUR DOLLARS AND TWENTY-FIVE ($4.25) CENTS; for those carrying a Certificate of TWO THOUSAND ($2,000.00) DOLLARS you are required to forward the sum of TWO DOLLARS AND SEVENTY FIVE ($2 75) CENTS; for those carrying a Certificate of FIFTEEN HUNDRED ($1,500.00) DOLLARS, you are required to forward the sum of TWO ($2.00) DOLLARS. For those carrying a Certificate of ONE THOUSAND ($1,000.00) DOLLARS you are required to forward the sum of ONE DOLLAR AND FIFTY ($1.50) CENTS, and for each member carrying a Certificate of FIVE HUNDRED ($500.00) DOLLARS you are required to forward the sum of SEVENTY-FIVE ($0.75) CENTS. Said remittances to reach the Grand Lodge not later than May 30, 1903, as provided in Section 61 of the Constitution.

Yours fraternally,

G. S. and T.

SPECIAL NOTICE.—All remittances must be made by BANK DRAFT, MONEY ORDER, OR EXPRESS ORDER. Members initiated after April 30, are not liable for this assessment. Treasurers are required to forward $2.00 Grand Dues for each new member (not yet remitted for) initiated on or before April 1st.

It will be noted in the right hand column that the above claims are all paid and the date of payment given

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The Grand President.

When the members of Hazel Lodge, of Peoria, Ill., said "Good-bye" to their beloved Grand President, who had served them so long and so faithfully as worthy President, she promised that she would visit them soon.

Impatiently they waited. Every meeting day, some sister would say, "Perhaps she will be with us for our next meeting." April 1st, she came: lovingly was she greeted; and loath were the sisters to let her go again; but others were waiting, even as the sisters of Hazel Lodge had waited.

Monday April 6th, she left for Clinton, Ill., to be present at the regular meeting of L. S. 158—while there, she will attend a Joint Meeting. From Clinton she will go to Freeport, Ill., where she will meet with Glendora Lodge 9—then to Chicago to visit Virginia, and Eloysia lodges. She will go to Boone, Iowa, and on her return trip to Chicago she will stop at Garret, Ind., to greet the sisters of Garfield Lodge 8.

Before coming to Peoria she had visited L. S. 112, at West Philadelphia, Pa., and she expressed much satisfaction over the meeting held with the sisters of this lodge, also, over the Joint Meeting held in the evening. She had also visited L. S. 41, at South Cumberland, Md. Here she found loyal, progressive sisters and brothers; thirty of the brothers were present at the Joint Meeting held at this place.

At Brunswick, Md., she was cordially received by the sisters of No. 52, and met twenty-five of the brothers at a very pleasant Joint Meeting.

The sisters of No. 61, of Hinton, W. Va., would have been delighted could they have heard their Grand President tell of the good work that they are doing, under the guidance of their "little energetic President." These sisters not only furnished transportation for the Grand President to Hinton, but secured transportation for her and twenty sisters to Charleston, the capital of the State. The Grand President is very enthusiastic over this trip, the beautiful scenery, the merry band of sisters and the one chivalrous, thoughtful brother.

To Hazel Lodge she spoke words of advice, of comfort and encouragement. She urged them to be up and doing if they would keep up with the procession. Not to forget their financial obligations. She said:

"Pay your assessment, it is to protect your own, why should you be delinquent?

"Don't impose upon your Collector. The Collector is our best friend.

"Our insurance is the cheapest there is.

"Our Society should be the largest of its kind in the world—for, not only are the wives of firemen eligible to membership, but their mothers, their daughters and their sisters as well.

"In every lodge I want peacemakers. 'Tis the peacemaker who smoothes over the little disagreeable incident that occurs—when we are so tired; and by her gentle intercession serious trouble is often avoided, for from little boulders huge mountains come."

She instructed them to begin their meetings on time, if five members are present, then the meeting can be closed early and the mother will be home when the little ones come from school.

She told them that "the promise, 'I will never say aught against a sister' is binding for all time." To say *nothing* when they could not say a *kind* thing.

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She reminded them of their obligation taken "In the presence of Almighty God," and asked if they remembered it when they stayed at home without a good excuse. She specified sickness and needed-at-home as *good excuses.*

She advised them not to neglect home duties; but to make every effort to attend all lodge meetings, adding—"Never mind what they *say* you come to lodge for; we know what we come to lodge *for.* We have a duty to perform and we are going to do it.

* * *

*Railroad Men and Their Needs.**

I thank you for this opportunity to pay, in the name of the Ladies' Society of the Brotherhood of Locomotive Firemen, a tribute to the Woman's Christian Temperance Union.

It has deserved well of all mankind. It is the grandest, noblest, most far-reaching, most unselfish organization of women in the world.

I thank you for the privilege of meeting with you today—to tell you something of the railroad men, and their needs, as we, of the Ladies' Society, meet them in our work.

First, I will tell you of some things that the railroad men, that we meet in our work, do *not* need. *They need neither civilizing nor christianizing. They are not subjects for reformation.*

Their civilization began before they were born, for as a rule, they come of good families. They come from the grand middle class—the class from which came Abraham Lincoln and William McKinley—the class that has furnished, and will continue to furnish, to the world its brain and its brawn.

We strive to *reform* the dishonest man, the depraved and the drunkard. *Railroad companies do not give their property into the keeping of dishonest men, neither are the lives of their patrons placed at the mercy of the depraved or the drunkard.*

Our firemen need not christianizing, *they are already christian.* Perhaps you do not see them in church as often as you would like, but railroad companies, when arranging their schedules, do not consult their employes as to the hour of their church service.

Out in the world, you will meet our boys. From the nature of their work they will be far from home, far from mother, far from the influences that restrain and refine, and you may do them a world of good; but we ask you when you meet them, when you classify and pigeon-hole them for future reference (you know we all do that, that is a part of our business nature), do not put our boys with the depraved, the drunkard or the "devil-may-care;" he belongs with none of them. You will find him, as a rule, well informed; you will always find him intelligent and possessed of ability. *There is no place on the payroll for the name of a man who is not intelligent or who has not ability.*

Possibly you will meet these boys again, perhaps not as firemen, but filling positions, *not more honorable,* but positions where, supplemented by quickened intuitions, a respect for details, and a knowledge of the importance of obeying orders promptly, their intelligence and ability receives speedier recognition and more adequate reimbursement.

To be eligible to membership in the B. of L. F., a man must have seen active service, firing a locomotive; thus you see that every officer, every member of our Brotherhood was at one time a fireman.

When Theodore Roosevelt was admitted to honorary membership in the B. of L. F. at Chattanooga, Tenn., he was made a member by men who were his equal. He was administered the obligation by, then, Grand Master Frank P. Sargent, Commissioner-General of Immigration of United States, one of the grandest, noblest, God-directed men in the country today. His wife, who is a fitting companion for her husband, honors the Ladies' Society by being its Grand President. The motion "that the President be made an honorary member of the B. of L. F." was made by the Hon. John F. McNamee, member of the Ohio Legislature, who is one brainy politician. Assisting in the initiation was John J. Hannahan, the present Grand Master, as strenuous a worker as the President himself. The record of the President's membership was made by a man with a future, of which Peoria will yet be more than proud, Frank W. Arnold, Grand Secretary and Treasurer. Among those who welcomed the President as "brother" after his initiation were editors; one of them, W. S. Carter, Editor and Manager of the Firemen's Magazine, is said to be by those who are competent to judge in such matters, the finest technical editor in the United States. There were doctors and lawyers, high in their professions; suc-

* Extract from an address given by Josephine C. Watts, Editor of the Ladies' Department, at the annual meeting of Peoria's W. C. T. U., held at Peoria, in the interest of Railroad Work, March 26, 1903.

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cessful business men and professors of colleges.

We're proud of all these, but *not more proud than we are of the strong, sober, loyal young brothers who represent 90 per cent. of the active firemen in the United States, Canada and Mexico.*

We ask you to inquire into the conditions that have brought about the conflict between the railroad men, in common with other bread winners of God's people, on one side and capital and the powers of special privilege on the other. We know when these conditions are understood the great, warm, pulsating heart of the W. C. T. U. will indicate where its duty lies, and the efforts of the hands and head will follow where the heart points the way.

The time has come when those who would deny to our loved ones the right to labor and to live by the strength of their hands, those who would oppose the best interests of women in the industrial world, the Legrees of the sweat-shop, and that demeaned person, who would profit by child labor, *must reckon* with the womanly indignation, the intelligence and the *influence* of the women who comprise the membership of the auxiliaries to the labor organizations.

In combating these evils, we will often meet the W. C. T. U. on common grounds, and we ask that we may be allowed to benefit by your broader experience, that we may be aided by our more mature judgment.

Believe us, we are sincerely grateful for your past kindnesses to our loved ones and we thank you in advance for your continued interest in them.

Notes.

Some members' intentions are all right —they intend to help along the good work, but they are so long beginning to begin.

When our Grand President, while speaking to Hazel Lodge, April 1st, made her earnest appeal for peacemakers, she awakened the sweetest chord in our fraternal symphony.

The heaven I hope for is a lightsome place,
Where smiles, aye, cling to every angel face,
Where through eternity and endless space
Ten mililon tongues shall ne'er be still,
Always recounting good, forgetting ill.

A woman there was, and she wrote right fair
(As you or I might do),
How out of a barrel to make a chair,
To be covered with chintz and stuffed with hair,
'Twould adorn any parlor and give it an air
(And we thought the tale was true).

Oh, the days we worked and the ways we worked
To hammer and saw and tack,
In making a chair in which no one would sit,
A chair in which no one could possibly sit,
Without a crick in his back.

(Continued next month.)

You Never Can Tell.

You never can tell when you send a word,
Like an arrow shot from a bow
By an archer blind, be it cruel or kind,
Just where it may chance to go.
It may pierce the heart of your dearest friend
Tipped with its poison or balm,
To a stranger's heart in life's great mart,
It may carry its pain or calm.

You never can tell when you do an act
Just what the result will be;
But with every deed you are sowing a seed,
Though the harvest you may not see.
Each kindly act is an acorn dropped
In God's productive soil,
You may not know, but the tree shall grow
With shelter for those who toil.

You never can tell what your thoughts may do,
In bringing you hate or love;
For thoughts are things and their airy wings
Are swifter than carrier doves.
They follow the law of the universe—
Each thing must create its kind—
And they speed o'er the track to bring you back
Whatever went out from your mind.

—Ella Wheeler Wilcox.



Notice of Union Meeting.

The eighth annual meeting of the Ladies' Societies of Kansas will be held in Chanute, Kan., May 20 and 21, 1903.

The meeting will be opened at 9 a. m. on the 20th. Sisters, put forth your best

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efforts to attend this meeting, as it will be of great benefit to all.

One and all, please accept, through the pages of our Magazine, a cordial invitation to our Kansas Union Meeting. All will be made welcome.

Remember the dates and be in Chanute for the opening.

MAE L. LAWTON,
State Sec. and Treasurer,
Chanute, Kan.

♣ ♣ ♣

Our Six Pages.

Read the Ladies' Department of the Magazine.

Read all of it, for somewhere in every issue there is a message for *you*.

That message will not be anything in regard to fashions. Editor Carter cut out "Fashions" some years ago and your Editress never posed as a "Madam Delineator."

It won't be about "cooking," that is, not often. The fact is, we could in just three minutes tell you how to cook a meal that a man couldn't digest in three weeks, but you can get the same valuable (?) information from hundreds of pamphlets, distributed free of charge, to advertise Price's Baking Powder or Pink Pills for Pale People.

When speaking of our six pages, or, for that matter, literature in general, do you not know that you give to the listener the measure of your intellectual capacity, when you call everything, that is not—canary colored—"dry?"

Business principles, insurance features, rules of courteous and womanly lodge procedure, official notices, fraternal greetings and messages of loving sympathy are subjects that properly belong in the official journal of a woman's fraternal insurance order; and they *can not* be presented in the form of a sensational story, nor can they be depicted upon a fashion plate.

The six pages, so kindly placed at our disposal by Editor Carter, is *our* official journal, and as such it is being conducted, Your Grand President and your Editress ask the co-operation of every sister in making it a credit to the Ladies' Society.

Do not think that letters have no place in it. Every month your Editress receives the official journal of each of twelve different societies. They all contain letters similar to ours and none better. Do not think that we do not want to hear about everything your lodge is doing. Is it not for the good of the Order to inform every reader of the Magazine that we have a B. of L. F. and a Ladies' Society in Montana that gave a ball that was attended by 600 persons? We refer to the letter in this issue from L. S. 168. Sisters of lodges, upon whose rolls appear the names of fifty, sixty, eighty, or even twenty members, does it not awaken a little of that dormant enthusiasm in your society when you read that L. S. 174, composed of just eight bright little sisters, is holding joint meetings with the B. of L. F., making preparations for an oyster supper, etc.?

Send along your letters, sisters. Once before we asked you to never mind the spelling, the punctuation or the composition—'tis easy to attend to that. Do not fear that your letter will not be interesting to every sister, for we all may read between the lines poems of fraternal friendship and earnest endeavor, stories of kind hearts and willing workers. Are they not interesting?

When you write, mention the parts of the Ladies' Department in which you are most interested, the subject you enjoy most. 'Twill help your Editress to please you. She has, thus far, submitted and will continue to submit for publication everything contributed, subject to the restrictions contained in Sec. 28 of our constitution and the approval of Editor Carter.

As to the articles that come from her pen, to complete the issue, in justice to the Ladies' Society, in justice to the Firemen's Magazine, in justice to herself, she must strive in the future, as she has striven in the past, to make them such as will pass muster in the field of fraternal press literature, which has come to have a place in the world of journalism.

♣ ♣ ♣

My Baby's Prayer.

What matter if the burdens have been heavy today,
Or if I've found some thorns scattered in my way;
Some way I am able to forgive the things that are amiss—
When I hear my baby's prayer, and get a goodnight kiss!

To me 'tis a privilege divine. Of joys this brings the best,
To have my little one folded close upon my breast.
The world seems transformed into a haven of bliss
When I hear my baby's prayer and get a goodnight kiss,

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While I can not know what the future may hold,
Yet I know I'll be happy thro' the years that unfold
If I may enjoy divine rapture like unto this—
When I hear my baby's prayer and get a goodnight kiss.
—Myrtle Haynes Pritchard.

♣ ♣ ♣

Letters from Friends.

FROM L. S. 118—(*Mrs. Loretta M. Dow, Secretary 118, Rensselaer, N. Y.*) L. S. 118 has been organized four years the 24th of May. We have lost one of our charter members by death. Our roll calls for nearly sixty members at the present time.

Our brothers of Lodge 215 gave their annual ball February 5th, and it was largely attended. We received an invitation and those who attended all report having had a very nice time. The brothers always make it pleasant for their friends, and they have many of them.

Thursday evening, March 5th, we invited Fort Orange Lodge 113, of Albany, to hold with us a union meeting, and they came with a large number of their members. The work was exemplified by the members of both societies without the use of the ritual. Our society had a candidate to initiate. The sisters all seemed to take an interest in the work. We enjoyed a social evening, refreshments were served and all returned to their homes much benefited by the meeting.

It is certainly pleasant to be neighborly and visit each other often, thus becoming better acquainted with one another.

We all read with pleasure the "Letters from Friends." We wish our sisters success in the different lodges. May success attend the efforts of the officers of the L. S.

Also a word for our Editress. May she never be discouraged in the work she has been called upon to do. May her trials be few.

[Thank you, my sister, for your kind words. Letters like yours, full of encouragement and kind thoughts, are appreciated more than you know by the members, the officers and the Editress of the L. S. —Ed.]

♣ ♣ ♣

FROM L. S. 168—(*Chaplain, Livingston, Mont.*) I think I will have to write again and tell our dear friends about the B. of L. F. ball. It surely was a grand success in every sense of the word, both financially and socially. About 600 people were present, some tripping the "light fantastic toe" and others as spectators. We who did not dance enjoyed visiting with and entertaining guests from other towns who came. The printed programs were very unique, indeed.

The L. S. helped the boys in every way possible. We wore our new badges for the first time and they added much to the pretty costumes of the ladies. We are very proud of our badges. They did not cost much, but they are very pretty and serve our purpose.

We must congratulate Bros. Brown and Robinson, who have taken to themselves partners for life. This very wise proceeding on their part means more reinforcements for us. We wish more of the boys would "go and do likewise."

I wish some of our Grand Officers would take a trip out to the "Rockies" and come and see us. Should they come, they will be entertained right royally, and the scenery and air will do them good. Here they will see nature clothed in beauty. Some of you may have been through here or to the Natural Park. Those who haven't, come along. Success to the L. S.

♣ ♣ ♣

FROM L. S. 162—(*Aggie Wagner, Algiers, La.*) As we never hear from our little lodge through the columns of our Magazine, I will write you a few lines to let you know that Enterprise Lodge 162 is still in existence.

We called a joint meeting Sunday, March 1st, and invited Endeavor Lodge 267, B. of L. F. to join us. Both lodges were well represented.

Our little lodge, though still in its infancy, reflects great credit on its officers and members, and Endeavor Lodge should feel proud of its auxiliary. Our membership is still growing and we hope to make it the banner lodge of the country.

I visited San Antonio, Texas, this past month, the guest of Sister Barr, of Blue Bonnet Lodge 147. It is needless to say that I was royally entertained, as any one who has ever had Sister Barr for hostess can testify.

While in San Antonio I visited Blue Bonnet Lodge and the sisters all treated me with the hospitality that becomes sister members. Sister Aylmers, President, and Sister Barr, Secretary of the lodge, showed me the principal points of interest in their city. I hope in the near future the members of Blue Bonnet Lodge may be the guests of Enterprise Lodge.

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FROM L. S. 53—(*Mrs. Amy Smith, Trinidad, Col.*) Floradora Lodge is still in the ring, though slightly disabled on account of many of our members being out of town.

We are sorry, indeed, to announce the death of Bro. Eli Cowling, husband of Sister Cowling, who was killed last month in the C. & S. yards by a switch engine. The remains were shipped to his old home in Texas, Bro. Fitts, of 344, accompanying them. Resolutions were adopted by 53, our charter was draped and all possible respect shown to Sister Cowling, whose home is made desolate by the death of her beloved husband. But we must abide by the will of "Him who doeth all things well." Los Animas Lodge 344 gave their annual ball the 20th of February, and to say that it was a decided success would be putting it mildly. Supper was served by our society and we realized a neat sum for our treasury.

We hold our semi-monthly meetings with our worthy President, Sister Patton always in her chair, despite the fact that she can not be long from her husband's side, he having been seriously burned and scalded by the overturning of his engine January 23d. He is doing as well as could be expected and sits up daily in his new Morris chair, a present from his lodge.

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FROM L. S. 174—(*Member, Somerville, Texas.*) Cape Jessimine's Helper is not dead, if we haven't been heard from since we organized.

Our joint meetings are something we all look forward to with pleasure. They are well attended and the same is true of our regular meetings.

There are only eight of us, but each one is doing all she can for the good of our noble Order. We are planning an oyster supper, the last of the season. We would be pleased to receive a visit from a member of the Grand Lodge.

♣ ♣ ♣

FROM L. S. 140—(*President, Wilkesbarre, Pa.*) Silver Leaf Lodge No. 140 held their second anniversary on March 5th in their hall, and report having had a most enjoyable time. We had three fine musicians with us, who entertained us all the afternoon, and their playing was highly appreciated by all present. After our entertainment we were served with a sumptuous repast.

Our good Bro. Quinn called on us just in time to enjoy our festivities. He thanked the sisters in behalf of Golden Link Lodge 250. Our society is flourishing and we are trying every day to live up to our obligations and practice our motto, "Friendship and Charity," toward all. We are forty-six in number, with prospects of new members.

♣ ♣ ♣

FROM L. S. 112—(*Secretary, W. Philadelphia, Pa.*) January 12, 1903, will long be remembered with pleasure by the members of Eureka Lodge 112. Upon that date we were privileged to receive our Grand President, Georgie M. Sargent.

She went through the regular routine of work with us, instructing and enlightening us on many points. She spoke to us earnestly and her words will go far toward bettering our lodge.

The brothers were then admitted and refreshments were served. We had a jolly good time all around. At a late hour we parted with the heartfelt wish that we, one and all, might have the opportunity of renewing the pleasure in the very near future.

♣ ♣ ♣

FROM L. S. 52—With much pride, we write of the pleasant visit to Winchester Pride Lodge of our Grand President, Georgie M. Sargent. We were much benefited by her good work and she will receive a warm welcome if she will come again. Through the combined efforts of our B. of L. F. and our Ladies' Society much has been accomplished for friendship and charity.

♣ ♣ ♣

FROM L. S. 75—(*Mrs. Estrela Tripp, Collector, Toledo.*) It has been a long time since the members of the L. S. have read anything in the Magazine from Addison Lodge, Toledo, but I wish to say we have not been sleeping. We have a band of energetic, faithful workers and many initiations since the new year. Our worthy President was obliged to resign her office a few meetings ago, her business compelling her to do so, much to the regret of all of the members. Card parties and social times are in regular order. Long live the L. S. of the B. of L. F.

♣ ♣ ♣

FROM L. S. 65—(*A Member, Nevada, Mo.*) Through the efforts of Bro. G. B. Thompson and others, White Carnation Lodge 65 was organized July 30, 1902, by Sister M. E. Hanes of Fort Scott, Kan. It now has a membership of twen-

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ty-one and is progressing favorably. We expect more new members soon.

We have held several dime socials at the homes of the sisters. All were well attended. In January, 1903, we held our first joint meeting with the brothers of No. 371. Short talks for the good of the Order were made. At the close of the meeting, Miss Keyselmire, our Secretary, furnished music. Every one present chose a partner and fell into a line of march to the dining room, where a good supper was in waiting.

We gave our first ball on March 16th. It was a decided success. The grand march was led by Bro. E. E. Putnam and wife, now residents of our city. The floor was under the management of Bros. Cauley, Kluith and Foster—they did well. The boys of Lodge 371 never do their work by halves. Among the visitors were Bro. Charles Hanes and wife, Bro. Parish and wife, Mrs. Paul, Mrs. Humphry and Mrs. Taylor, from 127. We thank all who kindly assisted us in making the ball a success, especially the brothers of Lodge 371. To traveling brothers or sisters let us say they will find our "latchstring" on the outside and a welcome greeting within. I wish all lodges of the L. S. and B. of L. F. success; also our Editor.

In Memoriam.

The members of L. S. 174 were called to Galveston to attend the last sad rites of our beloved sister, Lenorah Anderson, who passed away from this vale of darkness to that bright beyond March 24, 1903. We extend our heartfelt sympathy to the bereaved husband, relatives and friends. We sincerely thank the sisters of Oleander Lodge 45 for their kindness to our deceased sister and to us while in their city.

Official

Quarterly Insurance Assessment.

(Second Series Numbers.)

Notice No. 2, for the Quarter Ending June 30, 1903.

GRAND LODGE LADIES' SOCIETY
OF THE
BROTHERHOOD OF LOCOMOTIVE FIREMEN.
Office of Grand Secretary
and Treasurer.

BOONE, IOWA, June 1, 1903.

To all Treasurers of Subordinate Lodges:

Sisters—Assessment No. 2, for the quarter ending June 30, 1903, is hereby levied upon all members holding membership in the Insurance Department of the Society on or before June 1, 1903. You will forward to this office so as to reach here on or before the 10th day of June, 1903, the sum of sixty (60) cents from each member carrying a $200 policy and one dollar and twenty ($1.20) cents for each member carrying a $400 policy, using the two printed blanks which accompany this notice.

All remittances to be made by draft, postoffice or express money order, payable to "Grand Secretary and Treasurer, Ladies' Society, B. of L. F."

Members initiated on and after June 1, 1903, will not be liable for this assessment.

MARY E. DUBOIS,
Grand Secretary and Treasurer.

Approved:
GEORGIE M. SARGENT,
[Seal.] *Grand President.*

Note.—We enclose two printed blanks upon which Treasurers will make returns to the Grand Lodge for the above assessments. Both statements will be filled out exactly alike and sent with returns. If all names do not appear in the printed list they will be added. If any corrections are necessary they can be made by the Treasurer. One of the printed statements, with receipt, will be returned to the Treasurer.

For the names, lodge number, cause of death, etc., of deceased sisters in the payment of whose claim this assessment is levied, see issue of THE BROTHERHOOD OF LOCOMOTIVE FIREMEN'S MAGAZINE, where detailed statement of the same will be given in department devoted to the Society.

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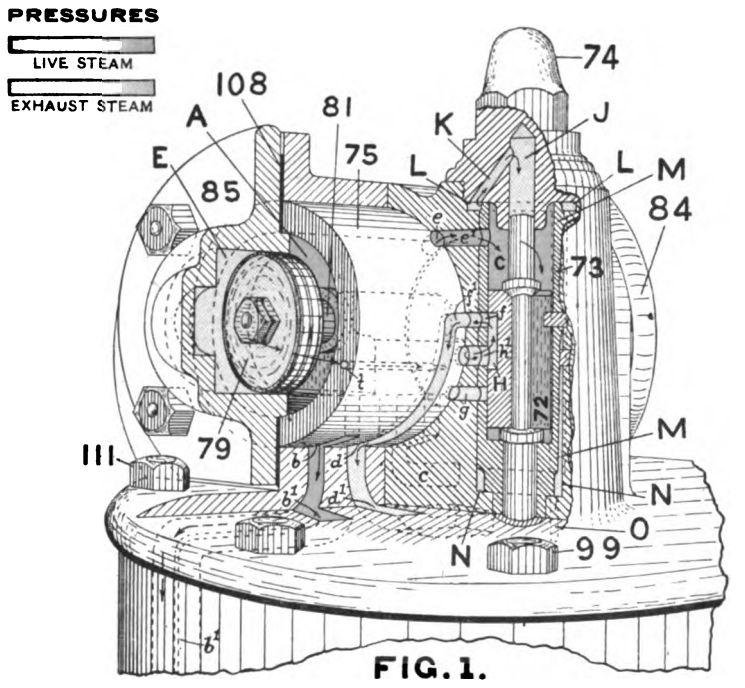


FIG. 1.

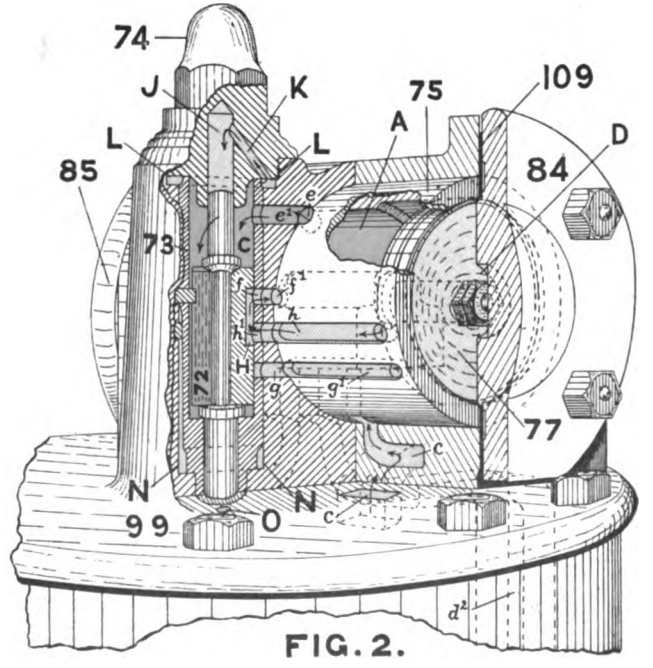


FIG. 2.

Locomotive Firemen's Magazine Educational Charts

WESTINGHOUSE AIR BRAKE SERIES

PLATE VI—NINE AND ONE-HALF INCH PUMP (Valve Action),

Copyright by W. S. Carter, 1903 Digitized by Google

Entered December 4, 1902, at Indianapolis, Ind., as Second-class Matter, under act of Congress of March 3, 1879.

BROTHERHOOD OF
LOCOMOTIVE FIREMEN'S MAGAZINE
W. S. CARTER
EDITOR & MANAGER

Vol. 34, No. 6.

Subscription Price, $1.50 per year.

INDIANAPOLIS, IND.
June, 1903.

Progress of American Railways

THE progress of American industries during the past few years has been phenomenal. As much as is said in the public press about the growth of the iron and steel industries, the development of the transportation industries has been more rapid. The public does not realize the changes that are taking place. Just as "mud" roads are changed into macadamized roads; just as horse cars are changed into electric cars; just as small shops are changed into great factories, so the American railroads have been progressing and developing. Monster locomotives have displaced those of but a few years ago; cars with double the capacity of those of ten years past are now in common use; tracks are rebuilt with heavy, high-grade steel, new ties and thorough ballasting; strong steel bridges give way to more massive bridges, and stone and concrete arches are taking the places of the shorter spans; new terminal facilities, stations, etc., are seen on every hand.

Where does the money come from with which all of these improvements are purchased? The Commercial and Financial Chronicle publishes the following statement:

Jan. 1 to Dec. 31.	*Mileage reporting.*	*Earnings.*	*Earnings per mile.*
1894	145,897	$826,599,690	$5,665
1895	143,052	842,460,397	5,889
1896	148,916	879,622,029	5,907
1897	154,930	974,466,753	6,290
1898	157,801	1,050,895,038	6,659
1899	156,958	1,128,928,916	7,191
1900	157,401	1,216,924,951	7,731
1901	170,549	1,495,915,406	8,771
1902	170,395	1,542,725,832	9,053

The earnings per mile of road have increased from $5,665 in 1894 to $9,053 in 1902; an increase in nine years of $3,388 per mile, or a total *increase* in earnings of $716,126,142 in 1902 over 1894.

The total earnings of the American railways in 1902 was $1,542,725,832, while that of the United States Government was only $918,295,141.

Just what proportion of these total earnings are expended in improvement of railway properties no one knows; not even the Interstate Commerce Commission, for such expenses are generally charged to "operating expenses."

From the Statistics of Railways of the United States for 1901, published by the Interstate Commerce Commission, we find the following:

	1894.	*1901.*	*Per Cent. Increase.*
Number of locomotives per 1,000 miles of road	202	202	...
Number of cars per 1,000 miles of road	7,275	7,930	9
Passengers carried per passenger locomotive	54,654	59,631	9.1
Tons carried per freight locomotive	31,909	47,692	49.5

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From the foregoing statement it will be noted that with the same number of locomotives in 1901 as in 1894, nearly 50 per cent. more tons of freight was carried in 1901 than in 1894. The report from which this information is obtained says concerning this startling feature:

"This does not indicate, however, that motive power per mile of line is no greater than in 1894, for the statement fails to take into consideration the great increase in tractive power of locomotives built in recent years."

This great increase in power of locomotives is one of the principal sources of increased revenue and value of property, for an engine crew not only is able to earn 50 per cent. more for railway companies in 1901 than in 1894, but the value of the locomotive has more than doubled.

Compensation of Employes

From the Statistics of Railways the following statement of the number and yearly compensation of railway employes is prepared:

	Total Number Employed.		*Per Cent.*	*Total Yearly Compensation.*		*Per Cent.*
Employes.	*1895.*	*1901.*	*Increase.*	*1895.*	*1901.*	*Increase.*
General officers	5,407	4,780	*11.6	$12,234,686	$13,141,428	7.4
Other officers	2,534	4,923	94	4,854,824	9,055,189	86.5
General office clerks..	26,583	34,778	30.8	18,820,959	24,833,944	32
Station agents	29,014	32,294	11.3	16,681,380	19,239,279	15.3
Enginemen.....	34,718	45,292	30	39,490,901	53,353,624	35
Firemen	35,516	47,166	32.8	22,571,130	30,941,619	37
Conductors	24,776	32,092	29.5	23,708,480	32,352,367	36.4
Telegraph operators and dispatchers ...	20,984	26,606	26.7	13,615,311	17,152,034	25.9
Total railr'd employes in United States...	785,034	1,071,169	36.4	445,508,261	610,713,701	37

A peculiar feature of this table is the decrease of more than 11 per cent. in the number of "general officers" and increase of 94 per cent. in "other officers." This has doubtlessly been occasioned by changes in classification of officers, and by consolidation of railway corporations. The total compensation paid to officers in 1895 was $17,089,510, and in 1901, $22,196,617, an increase of 30 per cent.

Another peculiar feature is that the average yearly compensation per employe was only $2.63 more in 1901 than 1895.

Of the classes of railway employes enumerated in the foregoing table, enginemen, firemen and conductors are usually paid by the number of miles run, and, therefore, most of the increased earnings of such classes may be attributed to increased business. It is possible that engineers' wages per mile may be reduced and yet this method of computing compensation show an increase in yearly compensation. The facts are that few, if any, employes in train service have had their wages per mile reduced, while many have had their wages per mile increased, and all have had their yearly compensation increased by reason of more miles run.

From the last table the average yearly compensation of railway employes appears to be as follows:

	1895.	*1901.*	*Per Cent. Increase.*
General officers	$2,262 75	$2,749 25	21.5
Other officers	1,915 87	1,839 36	*4
General office clerks.....	708 00	714 07	.008
Station agents	574 94	595 75	3.6
Enginemen	1,137 48	1,177 99	3.5
Firemen	635 52	656 02	3.2
Conductors	956 91	1,008 11	5.6
Telegraph operators and dispatchers	648 84	644 67	*.007
Total railroad employes in United States	567 50	570 14	.004

From this table it appears that the average salaries of "general officers" have advanced during the period covered more than one-fifth, while the average salaries of "other officers" show a slight decline.

* Decrease.

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Telegraph operators and dispatchers also show a decrease per capita of $4.17 per year. This may be accounted for by the great number of youths and women that have been employed as telegraph operators on many railways. It is a fact, however, that on those systems where the telegraph operators are organized considerable increases in wages have been paid since 1895.

The average yearly recompense of trainmen appears to have increased as follows: Enginemen, $40.51; firemen, $20.50; conductors, $51.30. This is no index, however, to actual wages per mile of such employes. It is evidence that an average of more miles were made by each engineman, fireman and conductor in 1901 than in 1894.

Railway Bookkeeping and "Operating Expenses"

Very little can be learned from any report of the *actual* operating expenses and net earnings of railways. Much is charged to the "operating expenses" of railways that would not be so charged in ordinary mercantile business. Accurate inventories of properties seem not to be considered in estimating "operating expenses" and "net earnings" and "profit and loss." If a merchant found that he was able to substitute a modern six-story building for his old three-story building, and pay for such improvements with the profits on his business, he would consider such profits as "net earnings," and such improvements as an addition to capital invested. Not so with railway corporations. The cost of the modern building would be charged to "operating expenses," and if the profits of the business did not pay for the six-story building the official reports would show that there was a "deficit," and the statement would be made that the company was "losing money."

Very little can be learned from any report of the *actual* value of railway property. The so-called "capitalization" of railways is no true index to either the actual value of the property or of the capital actually invested. The financial managers of some roads restrict the amount of "capitalization," or stocks and bonds, so that there may be some approach to actual investments, while other railways have many times more dollars in stocks and bonds than were ever invested in the roads. Some railway stocks and bonds are worth but a few cents on the dollar, while other railway stocks and bonds may be considerably above par, and yet, the railway whose stocks and bonds that are lowest in value may be actually the best paying road, when *actual cost* of road is considered.

The most successful railway managers are those who can pay dividends and interest on the largest capitalization in excess of actual investment, and at the same time keep up the physical condition of the road—and avoid conflicts with employes. It is a simple matter for "Wall Street" to add 25 per cent. to the capitalization of any railway, but unless business is exceedingly prosperous it is difficult for the operating officials to pay tribute to this new master.

The Railway Age says editorially (June 14, 1901,) that "market quotations are no evidence of the earning power or real value of railway and industrial securities."

From information obtained in Poor's Manual we find the following for all of the railways of the United States:

	1895.	*1901.*	*Per Cent. Increase.*
Passenger train miles.....	326,184,596	301,543,708	7.5
Passengers carried	529,756,259	600,485,790	13.3
Passenger miles	12,609,082,551	17,789,669,925	41
Passenger gross receipts..	$260,929,741	$360,702,686	38.2
Average receipts per passenger mile	2.069 Cts.	2.028 Cts.	*2
Average receipts per passenger train mile.....	79.99 Cts.	92.12 Cts.	15.1
Average passenger receipts per mile of railroad.....	$1,456	$1,861	27.8
Average number of passengers per mile of railroad.	2,957	3,098	4.7
Freight train miles.....	491,410,820	505,468,619	2.8
Tons of freight carried....	755,799,883	1,084,066,451	43.4
Ton miles	88,567,770,801	148,959,303,492	68.2
Gross freight receipts.....	$743,784,451	$1,126,267,652	51.4

* Decrease.

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	1895.	1901.	Per Cent. Increase.
Average receipts per ton mile	.839 Cts.	.756 Cts.	*9.9
Aver'ge receipts per freight train mile	$1.5136	$2.2282	47.2
Average freight receipts per mile of road	$4,151	$5,792	39.5
Average number of tons per mile of road	4,263	5,575	30.7

From information contained in Poor's Manual for 1902 the following statement is compiled:

	1895.	1901.
Miles of track	179,821.26	195,886.9
Total traffic revenue	$1,092,395,437	$1,612,448,826
Net earnings	323,196,454	520,294,727
Other receipts	113,768,075	68,368,814
Total available revenue	436,964,529	588,663,541
Total payment as interest on bonds, dividends on stock and miscellaneous	431,871,811	477,355,347
Surplus revenue	5,092,718	111,308,194

The "operating expenses" are not stated, but presumably the difference between the "total traffic revenue" and the "net earnings" is classed by the railways as "operating expenses." If this is a fact, the "operating expenses" of the 179,821.26 miles of railway in 1895 were $769,198,983, and for the 195,886.9 miles of railway in 1901 the "operating expenses" were $1,092,154,099.

How much of the billion dollars of "operating expenses" of 1901 that went to additions and improvements no one knows, for this is something not made public, except in the annual reports of directors to stockholders—and even in these reports it requires special explanation to uncover such investments.

Prosperity of the Wabash Railway

In order that at least some information might be had we will refer to the annual reports of the Wabash Railroad. While the Wabash is not the most prosperous of the railways of the United States, it may be taken as a fair average. In the Wabash reports new locomotives are charged in the operating expenses as "repairs of locomotives." Cars built and purchased have recently been enumerated, but are charged as operating expenses. New steel bridges, buildings, real estate, etc., are also charged to operating expenses. In some instances, upon the acquisition of new roads, equipment has been charged to cost of new road.

The following paragraphs, all referring to "additions" charged to "operating expenses," and prosperous and adverse conditions, are taken from the annual reports of the officers of the Wabash Railroad to the stockholders of that road:

1891. President Ashley's Report.—"Provision for the perfection of the road, both by more thoroughly ballasting and changes of gradients, should be made, from time to time, as money can be appropriated, but surplus income may suffice to make these improvements, without adding to the debt of the company."

1892. President Ashley's Report.—"No fund having been provided for improvements in the reorganization, all additions to rolling stock and all betterments—such as substitution of iron for wooden bridges, brick and stone stations, stone in place of wooden culverts, interlocking switches, the correction of gradients and more thorough ballasting—must be made from earnings, or not made at all. Some of these betterments, to the amount of $218,857.52, have been charged to Income Account, the balance to the credit of which has been reduced to that extent."

"The financial condition of the company is exceptionally strong, in accordance with the conservative policy of the executive officers rigidly adhered to since the reorganization."

1893. President Ashley's Report.—"Conservative railway management in the United States is understood to imply the maintenance and repair of lines from the yearly earnings, and although it often becomes necessary to provide for deficient

* Decrease.

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or incomplete construction from other sources than earnings, it is generally considered more in accordance with sound principles of finance to make definite appropriations to meet the required expenditures, either by the issue of bonds or capital stock, when the new construction is authorized. Whatever difference of opinion there may be in regard to this point, it has been the policy of the Wabash management to limit betterment expenditures to the means available for such purpose. Adherence to this policy has enabled the company to avoid the creation of a floating debt, and to enjoy comparatively financial independence. Except in vouchers, which are necessarily carried from month to month, the Company owes no floating debt other than that included in the notes given for rolling stock, which are payable monthly, extending over a period of three years, and which are charged to operating expenses as they mature. Thus far the Company has been able to meet all fixed charges from current receipts and to keep a fair cash balance in hand."

"Railway accounts are too complicated to furnish information to stockholders, without analysis and condensation by expert accountants, * * *"

"The Wabash track and machinery are in better physical condition at the present time than at any period in its previous history. One or two years of similar work will enable the Company to operate its lines at the lowest percentage of expenses commensurate with the proper maintenance of its roadway and structures. During the receivership a large portion of the freight equipment became useless, partly on account of insufficient repairs and renewals and partly from age. These cars have been largely replaced by new ones of modern size and improved appliances, and although, numerically, there is but little if any gain, the changes and replacements have very largely increased the efficiency and utility of the equipment."

"The recent disturbance in the financial and business affairs of the country has led railway managers to expect a material decrease in traffic. * * * Thus far, the Wabash has but lightly suffered, * * * but it would be imprudent to count upon any exemption from troubles which are so general and far reaching."

1894. President Ashley's Report.—"A period of extraordinary business depression, beginning in the spring of 1893 and embracing the entire year covered by this report, has had a paralyzing effect upon all the industrial as well as transportation interests of the country. It came upon the business community unexpectedly, because the usual conditions of a commercial crisis were lacking, and because the financial situation threatened no disaster, so far as a superabundant supply of capital and very low rates of interest indicated the situation. Neither over-trading, reckless speculation, or undue expansion of credit, which are the usual precursors of a business crisis, were visible even to careful students of economical science, practically applied. Consequently the sudden paralysis which struck the transportation and other business interests in the early part of 1893, and which lingered until midsummer of the present year, found railway managers somewhat unprepared for such a calamitous visitation. It came, too, at a time when, in anticipation of a large increase of passenger traffic for the World's Fair, every railway company which had reason to expect an unusually large demand for rolling stock, to move conveniently and rapidly the throngs of visitors to and from Chicago, had found it necessary not only to maintain the usual operating force, but to add to it, in the ratio of the anticipated increase, and for similar reasons to add largely to the rolling stock thus to be employed."

"Beginning with the early months of the present calendar year, the operating expenses of the Wabash Company have been largely reduced, and the excellent physical condition of our lines will permit a continuance of these economies for some time, but they have not been long enough in operation to be of any material benefit to the fiscal year under consideration in this report."

"In England a practice prevails of charging to 'cost of road' all so-called betterments, whether such betterments add to the earning capacity of the road or not, and to capitalize the increase by the issue of interest-paying debentures. This practice would not be popular here, although it may find some justification in the broad proposition that improvements in construction and increase in motive power and rolling stock should be entered as a part of the cost of the property, and not be a charge upon income."

"The actual floating debt of the Company at the close of the fiscal year, excluding vouchers which are of a permanently floating character, and the long-date car notes which by monthly payments are charged to operating expenses, was $250,000, which represents the only money ever borrowed by the company up to that date, since

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its reorganization in 1889. * * * In point of fact, there has been no increase in funded debt, or in cost of road as compared with the statement made in our last annual report."

"Business is steadily reviving and the traffic returns in August, although comparing with a period of a large passenger traffic, incidental to the travel attracted by the World's Fair in Chicago, show a fair gain over the corresponding period of last year."

1894. General Manager Hays' Report.—"The condition in which the property is now found, both physically and financially, bears encouraging evidence as to its resources and recuperative powers."

"Although sympathy in the Pullman strike was alleged as the governing motive for the action taken by our employes, and its settlement was made a condition upon which they would resume work, the real source of the trouble lay in their opposition to and desire to defeat our new schedule of rates and rules governing engineers, firemen, conductors and brakemen, which took effect May 1st. The decision to make effective the rules and rates covered by the schedule, which approximated a reduction of 7 to 10 per cent. in wages, was arrived at by the management after reductions in salaries of general officers and other branches of the service had been in force several months, and after thirty days' notice of such intention on the part of the Company, which notice had been followed by a friendly conference between our officers and committees representing the engineers and firemen, conductors and brakemen."

"During the year 1,000 new coal cars were added to the equipment, upon which there was made a cash payment of 15 per cent. and the balance extended in monthly payments over the next ensuing three years."

1895. President Ashley's Report.—"The result of the year's operations is a deficit of $542,906.41, a large part of which is attributable to the strike of employes during the first half of the month of July, 1894, during which time the operations of the road were almost entirely suspended, while the expenses were only reduced by the wages forfeited by the striking force."

"We enter the new fiscal year with substantial evidences of a larger and more profitable business and, although the transportation interests will not derive any benefit from the corn crop until December, the revival of industry in every direction already contributes satisfactory gains to the revenues of the company."

"The physical condition of the lines in the Wabash System continues excellent, although some important betterments have been temporarily suspended. It has been the policy of the management to preserve the condition of the tracks and motive power in the state of safety and efficiency hitherto maintained."

1896. President Ashley's Report.—"It is satisfactory to note a steady improvement since the years of depression, 1893 and 1894, and, consequently, an increase in profits amply sufficient to meet all fixed charges, and to leave a moderate surplus."

1896. Vice-President and General Manager Ramsey's Report.—"* * * The entire increase in expenses has been due to improvement of the properties, and that the cost of moving and handling traffic has been less than for 1895, although there was an increase in 'tons carried one mile' of 117,709,155 tons (10.7 per cent.) and 'passengers carried one mile,' 19,494,150 (14 per cent.). The increase in the amount expended upon repair of equipment, and improvement and additions to property, were as follows:

Real estate purchased	$18,004 44
Repairs, locomotives	59,725 61
New machinery in shops	12,694 25
Repairs of cars, freight and passenger	50,769 37
Maintenance of way	237,839 20
Total	$379,032 88

(Charged to maintenance of way in 1895-96 was 9,449.6 tons of new steel rails, 130,390 feet of trestles and bridges rebuilt and repaired, and $172,797.88 in buildings rebuilt and repaired. The report itemizes "extraordinary renewals and improvements," "depots, buildings, etc.," and "miscellaneous."—ED.)

"The cost of train service, including trainmen, engineers, firemen, fuel and supplies for locomotives, etc., with an increase of 171,120 miles (1.53 per cent.) in train mileage, shows a decrease of $96,262.95."

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"Since January, 1896, special attention has been given to the train service, both freight and passenger, with a view to securing a minimum of train mileage and a maximum of train loads."

1897. President Ashley's Report.—"During a year of unusual depression in all kinds of business and a large reduction in the volume of railway traffic, which decreased the amount of gross earnings by the sum of $1,280,355.32, the net earnings of the System show a loss of but $16,909.93 as compared with the fiscal year ending June 30, 1896. This gratifying result, which has been brought about by the judicious economy in the train service and in a close attention to the minor details in the operation of every department, reflects great credit upon the intelligent judgment of the Vice-President and General Manager (Mr. Ramsey), under whose immediate supervision the operations have been conducted."

"A large reduction in operating expenses, shown by the foregoing statement, leads naturally to the suspicion that a large share of the economy has been secured at the expense of the road and its rolling stock. It is a sufficient answer to this conjecture to say that the lines of the Wabash System were never in such physical condition as at the present time. During the year 15,000 tons of new steel rails, weighing 80 pounds to the yard, have been purchased and laid down; while at the same time the repairs in every department have been completely and thoroughly maintained. The rolling stock has also been increased by the purchase of 500 box cars of modern standard."

"Availing of the opportunity offered by the unprecedented low price of steel rails last spring, the management have contracted for an additional supply of 20,000 tons of the same weight at the figures then ruling, and we shall thus be enabled to make very substantial and desirable improvement of our tracks at a minimum cost. Adhering to the policy heretofore followed by this company, all of these expenditures in the department of maintenance and repair have been charged to operating expenses. The cost of the road, therefore, as will appear from an examination of the balance sheet, has not been increased since the reorganization of the Company in 1889, except by the sum of $5,000 paid for second mortgage bonds appropriated beyond the amount in hand, and the cost of the Montpelier and Chicago road added to the original system in 1893."

1897. Vice-President and General Manager Ramsey's Report.—"Any increase in the 'train load' or 'tons of freight per train mile' will produce a direct and proportional decrease in the cost of transportation per ton of freight in all items of expense connected with the train service, while a decrease in the 'train loads' will necessarily result in increased cost."

"The 'train load' of the Wabash is not a heavy one, and can not be made what it should be with our comparatively light freight engines, but with our heavy 80-pound rail and new freight engines of 107,000 pounds on drivers (expected this fall) the 'train load' should approximate 280 to 300 tons."

"The policy of the company since its reorganization has been to improve the physical condition of its property during good years, thus enabling it to curtail its expenses on this account during poor years. Since 1890, large sums have been expended on account of improvements of property, real estate, rolling stock, new sidings and yards, etc., and all charged to expense account. In this period 108.7 miles of new siding have been added; over half a million dollars expended on new iron bridges built after the heaviest designs; large sums expended in the filling in of trestles; nearly one hundred thousand dollars on interlocking plants at crossings of other roads; 1,100 new box cars, 3,000 new coal cars, 8 first-class coaches, 4 parlor cars and 4 cafe cars. This policy has put the Wabash property in a condition today which enables it to be economically operated, and to handle its traffic at as low a rate per ton per mile as any of its competitors, but this policy should be continued, and such improvements made by the reduction of gradients at three or four points, and the purchase of heavier freight engines, as will enable it to move its traffic at a very low minimum expense, and put it in a position where it can be operated and maintained for 65 to 66 per cent. of its earnings. With good earnings for two or three years this can be done."

1898. President Ashley's Report.—"The application of the surplus earnings of the year has enabled the Company to pay off $400,000 of the floating debt which has been reduced to $400,000 at the end of the fiscal year. Within the ensuing six months a large part of this, if not the whole amount, can be liquidated, and at the

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end of the present fiscal year, counting upon a continuance of fair traffic, it is not unreasonable to expect a complete elimination of these borrowed money notes. The statement of floating debt does not include equipment notes amounting to $430,692.40, which extend over a period of two years in monthly payments, amounting to an average of about $18,000 per month during that period. These notes are charged to operating expenses as they mature, and will be easily provided for in monthly earnings."

1898. Vice-President and General Manager Ramsey's Report.—"The increase in expenditures of this (maintenance of way) department, $120,922.57 ($21,723.14 of which was on the Buffalo Division), does not indicate the great improvement made in the track and property of the Company during the year."

"You will note a large increase in cross-ties used—307,283 ties, and in cost of same, $75,804.93; an increase of $40,077.77 in repairs to bridges, due to the removal and replacing with iron pipe and solid embankments of 5,081 lineal feet of trestle work; the building of five iron bridges with masonry, in place of wooden bridges and trestles; four new Howe truss bridges, etc. The total amount expended for new bridges, masonry and trestles being $84,414.14; an increase of $34,520.37 in frogs, switches, spikes and rail fastenings, and an increase of $107,008.36 in track repairs (principally labor). There was $37,138.34 expended in construction of 7.9 miles of new sidetracks at fifty-five stations."

"Twenty-six thousand eight hundred and fifty-nine dollars was charged to 'repairs to locomotives' account, on account of twenty-five new locomotives purchased during the year. These locomotives were delivered during April, May and June. Five are passenger engines, Atlantic type, and twenty are heavy 10-wheel freight engines. The total cost was $263,985.04, of which $55,860.17 was paid in cash and material, and the balance payable in twenty-four equal monthly notes. The cost of these engines will be charged to expenses as the notes mature. The 'tonnage' capacity of these engines is fully 40 or 45 per cent. greater than the best engines we had prior to getting the new ones."

"The expenses of this (car) department have been unusually heavy—first on account of the extension of our through train service to Buffalo and New York, requiring the vestibuling and equipping with steam heat of a number of cars, new postal cars and combination cars; second, putting on of safety appliances, couplers and air brakes, and third, new freight cars."

"Contracts were entered into in May, 1898, for 1,000 30-ton, 36-foot box cars, which will be delivered in August, and for five chair cars and five first-class coaches, for August delivery. The payment for box cars will be spread over five or six years, in monthly car trust notes at 5 per cent. interest. The payment for chair cars and coaches over two years' period."

"As the Wabash is now apparently entering upon a new era, I have thought it would be of interest to compare the Wabash of July 1, 1898, with the Wabash of July 1, 1889, in mileage of system operated and condition of property and equipment:

MILES OF TRACK OWNED, LEASED AND OPERATED.

	1889.	*1898.*	*Increase.*
Owned	1,443.4	1,593.8	150.4
Leased	204.2	212.6	8.4
Joint tracks	203.5	449.7	246.2
Owned by Purchasing Committee	69.9	69.9	
Total main line	1,921.0	2,326.0	405.0
Side tracks	470.5	628.6	158.1
Total mileage, all tracks	2,391.5	2,954.6	563.1

"New steel rail has been laid as follows:

80-lb. steel rail	37,709.3 tons,	or 300.6 miles
70-lb. steel rail	14,175.0 tons,	or 128.5 miles
63-lb. steel rail	40,364.9 tons,	or 404.6 miles
Total	92,249.2 tons,	or 833.8 miles

"Of this rail, all the 80-pound and 6,948.1 tons of the 63-pound, a total of 371.5 miles, were laid in 1896, 1897 and 1898. July 1, 1889, there was no rail in track

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over 63 pounds in weight. One thousand and twenty miles of main track have been ballasted, including 250 miles of burnt clay ballast, put in place of dirt in main line between St. Louis and Kansas City.

Grades have been reduced and 'sags' taken out (to prevent breaking trains in two) at a cost of	$108,798 76
18,793 lineal feet of trestles (3.56 miles) have been removed by filling in with solid embankment and open water-ways, closed with iron pipe, at a cost of	200,000 00
Thirty-two old bridges have been replaced with heavy iron bridges at a cost of	518,166 00
New stations, shops and other buildings erected	671,402 11
Sixteen interlocking plants, Wabash proportion	51,925 17
116.6 miles of new sidetrack built	466,000 00
Real estate purchased	314,198 00
River protection, near Kansas City	66,360 40

"Comparing the passenger equipment June 30, 1898, with July 1, 1889, we find a net increase of 40 cars, as follows:

An increase of—

12 Coaches.
4 Chair Cars.
8 Parlor Cars.
3 Cafe Cars.
1 Dining Car.
10 Combination Cars.
1 Baggage Car.
6 Postal Cars.
1 Air Brake Instruction Car.

And a decrease of—

1 Baggage and Mail Car.
2 Official Cars.
3 Baggage, Mail and Passenger Cars.

And in freight equipment a total decrease of 1,208 cars, including all classes, or a decrease of 1,237 in cars carrying revenue tonnage.

FREIGHT CARS ON HAND.

Capacity, lbs.	*July 1st, 1889.*	*June 30th, 1898.*	*Increase.*	*Decrease.*
24,000	2,224	67		2,157
30,000	5,123	1,359		3,773
36,000	47	45		2
40,000	4,315	3,562		753
60,000	1,479	6,920	5,441	
80,000		6	6	
120,000	1	2	1	
Total	13,198	11,961		1,237
Total capacity in tons.	225,074	297,576	62,502	

"In 1889, only 11.2 per cent. was over 40,000 pounds capacity, and 55.7 per cent. of 30,000 pounds and less, while on June 30, 1898, 57.9 per cent. was 60,000 pounds capacity, and only 11.9 per cent. 30,000 pounds capacity and under, the carrying or traffic value of the equipment being 62,502 tons, or 26.5 per cent, greater June 30, 1898, than on July 1, 1889. In that period we have expended $2,244,000 for new freight equipment, and $136,280 for new passenger equipment."

"July 1, 1889, the total number of engines was 409, of which 345 were 17 x 24-inch cylinder engines or smaller. They were so light, old and worn out that 66 engines were scrapped during the first three years. Since July 1, 1889, 120 new heavy freight and passenger engines have been purchased or built, and now only 233 engines are 17 x 24 or less, and 179 are 18 x 24 to 20 x 26-inch cylinders. There have been expended for these new engines $1,750,000."

"While the total expenses of this (telegraph) department were increased $6,254.36, the amount expended on construction, or new work, and on reconstruction of lines, increased $7,026.72."

1899. President Ashley's Report.—"The operating expenses have been largely increased by payments on account of new rolling stock, steel rails and the application of air brakes and automatic couplers to equipment, in compliance with law."

"The policy of the Company, as heretofore announced, has been to charge all betterments in the way of new rolling stock, steel rails, new bridges, station and track improvements to operating expenses."

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"The magnitude of these expenditures during the last three or four years will be more clearly appreciated when it is understood that more than three-quarters of the entire equipment of the system has been practically renewed during that period, while, at the same time, nearly all the main track has been renewed with steel rails, and much of it with steel weighing 80 lbs. to the yard. * * * Since 1890, a great change has taken place in traffic conditions. Reduced rates of transportation have suggested economies in operation in heavier and more powerful engines, freight cars of larger capacity, and increased train loads. These changes in rolling stock have required corresponding improvements in road beds, bridges and tracks, to sustain the greater power and weight of the new machinery. This process of adjusting the means of transportation to the prevailing traffic conditions, is the accepted solution of the problem of moving low class freight long distances at a minimum cost. The experiment has been a signal success thus far, but it has called for an outlay of money which has severely taxed the resources of railway companies. * * * The present physical condition of the property, including its new and large motive power, and increased carrying capacity are satisfactory proofs of the wisdom of the policy followed. * * * The financial condition of the Company shows satisfactory improvement."

1899. Vice-President and General Manager Ramsey's Report.—"The increase in maintenance of way expense was only $23,376.03, although 23,777.6 tons of 80-pound steel rail, 109 tons of 70-pound steel rail, and 294 tons of 63-pound steel rail were laid in main tracks; 121.4 miles newly ballasted and heavy expenditures for the repairs of bridges, frogs and switches, spikes, splices and fastenings, and $18,823.93 for river protection. We purchased 26,250 tons of 80-pound rail at a cost of $450,675 at the mill. On account of delay in shipping by the mills, the bulk of this new rail was delivered after December, 1898, and old rails were worth more per ton when they were released from the track than the new steel cost. June 30, 1899, we had on hand 5,224 tons of 63-pound rail, which will be rerolled and laid on our branch lines, and 10,072 tons of scrap rails and relayers. The work of improving the roadway by the replacing of trestles and open water-ways with iron pipe culverts was vigorously pushed and during the year 5,669 lineal feet of trestles, 1.06 miles, were filled, and three iron bridges were built to replace wooden bridges, at a cost of $20,172.76. New shop buildings were erected at various points, at a cost of $22,966,30, and $19,269.91 was expended in additions to and remodeling of Springfield passenger station, and $23,200.81 was expended for the new freight terminals, house and tracks at Buffalo. For reducing grades and removing sags on Western Division, $11,733.96 was expended. * * * Interlocking plants at six crossings of other roads were put in at a cost to the Wabash of $13,761.59. Thirteen and three-tenths miles of new side tracks and spur tracks to various industries were built at a cost of $48,891.54. Real estate was bought for extension of yard facilities at St. Louis, Peru, Bement and Detroit, and at Logansport to remove some bad curves and heavy grade at a cost of $19,911.77."

"The total amount expended for repairs of engines (including $123,234.20 paid for new engines) was $799,895.33." * * *

"Contracts were placed in February for 40 locomotives; 8 high class 8-wheel passenger engines, 28 heavy mogul freight and 4 heavy switching engines for May, June and July delivery, but owing to the delay of the builders getting material from the mills, the first deliveries were not made till late in August. It is expected that all will be delivered by the end of September. These engines will cost $396,125; 10 of these engines, costing $100,000, will be assigned to the Des Moines and St. Louis Division, and paid for out of the D., M. & St. Louis bond issue, and the remaining $296,125 will be paid, 10 per cent. cash, and by equipment notes extending over four or five years, in monthly payments."

"The expenses of this (car) department for the year were, as last year, above the normal—first, on account of the unusual requirements of the Buffalo Division; second, putting on safety appliances, couplers and air brakes, and third, new freight cars."

"During the three years, July 1, 1896, to June 30, 1899, liberal purchases were made of equipment and rail; 2,580 30-ton box cars; 250 30-ton furniture cars; 500 40-ton coal cars; 10 coaches and chair cars; 2 dining cars; 65 locomotives (including those now being delivered) and 62,327 tons of 80-pound rail, with large quantities of frogs, switches and fastenings."

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"The Wabash is in better condition physically, and to secure and handle traffic promptly, and at a lower cost per ton, than ever before."

1900. President Ashley's Report.—"* * * the Board of Directors has not hesitated to authorize liberal outlays from earnings in order to enable the lines of the Wabash to compete with other first-class systems. * * * This brief explanation of the policy of the company seems necessary in order to account for the liberal additions to the rolling stock, which must be paid for from earnings. These payments extend through the ensuing six years, in monthly installments, and except so far as they have been increased by the addition of the leased lines between Detroit and Buffalo, are a legitimate charge to operating expenses in the department of maintenance and repair."

1900. Vice-President and General Manager Ramsey's Report.—"With the large increase in gross earnings, $2,047,016.14, there may be some feelings of disappointment in the comparatively small increase in net earnings, but a careful examination of the various statements and statistics, especially those showing the expenditures on account of the various improvements and additions to property, cars and locomotives, will show that a large part of the increase in expenses has been due to actual improvements and additions, and that the increase due to cost of securing, moving and handling the increased traffic and legitimate maintenance of the property has been not out of proportion to the increase in earnings."

"For the years from 1895 to 1900 the 'revenue' train load has been as follows:

1895	176.29	(tons)
1896	193.04	"
1897	212.87	"
1898	216.55	"
1899	234.72	"
1900	268.94	"

"The 'average load per car' corrected for past years as above, was—

1895	13.37	(tons)
1896	13.80	"
1897	14.00	"
1898	14.16	"
1899	14.83	"
1900	16.07	"

"The total amount expended for repairs of engines (including $197,261.85 paid for new engines) was $996,769.58, equal to $2,323 per engine for 429 engines, the average number on hand during the year. This is $398 per engine in excess of the average per engine last year. We received, during the first five months of the fiscal year, 8 eight-wheel passenger engines, 28 mogul freight and switching engines. Ten of these were allotted to the Des Moines Division and charged to the construction account of that division. * * * Nearly 50 per cent. of the engines on hand July 1, 1899, went through the shops for general repairs, and 72 per cent. for heavy repairs. These per cents. are way above the average for such repairs, and show the 'building up' of our motive power that is going on."

"The expenses of this (car) department for the year were, as last year, way above the normal—first, on account of charging out amount carried in suspense for new dining cars and coaches; second, putting on of safety appliances, couplers and air brakes, steam heat, etc.; third, new freight cars, and fourth, postal and combination cars. The total amount on account of these items was $741,557.15. In March, 1900, contracts were entered into for 3,000 thirty-ton box cars, 36 feet long in clear, and for 500 forty-ton coal cars, all to be delivered by September 1, 1900. They are now being received rapidly, and all will be on hand by about the first of September, as per contract. They were all built to modern standards, steel bolsters, air brakes, automatic couplers, draft rigging and large dimensions. The contracts provide for payments in 72 equal monthly notes, interest at 5 per cent., with option of anticipating payments."

ADDITIONS.

Real estate	$11,616 59	
New yards, tracks, spurs, etc	140,201 17	
Double track, Bement to Decatur	23,247 07	
New shops, stations, buildings, etc	31,739 17	
New interlocking plants	15,392 92	
		$222,193 92

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IMPROVEMENTS.

Reducing grades and removing curves	$55,719 56	
Filling trestles, iron bridges in place of wooden ones, river protection, new stations enlarged, etc	133,999 29	
New shop machinery	8,609 73	
		198,328 58
		$420,525 50

"In addition to these items of expenditure to improve the property, there have been great improvements made in the condition of the property, and considerable sums expended in the way of heavy rails, frogs, switches and track betterments. As shown by the foregoing statistics, there was no let-up in the policy of improvement which has been in force since the reorganization in 1889."

1901. Chairman of the Board Ashley's Report.—"During the year two issues of bonds have been authorized by the stockholders and debenture mortgage bondholders at special meetings held for the purpose. One of these, called the Gold Equipment Sinking Fund Bonds of 1901 for $3,000,000, is dated March 1, 1901, and runs for twenty years at 5 per cent. interest, and provides for a sinking fund of $100,000 per annum for five years; $150,000 per annum for the next ten years and $200,000 per annum for the last five years. These bonds are secured by new rolling stock, part of which has been hitherto paid for in monthly installments, and the remainder of which is in course of delivery. This arrangement will relieve the operating expenses of the monthly charge of about $20,000 after providing for the sinking fund and interest."

1901. President Ramsey's Report.—"On account of the heavy expenditures for equipment, reduction of grades, double track, etc., the heaviest in any year since the reorganization, the surplus is not as large as for the previous year. * * * There was, in round figures, $1,000 per mile expended on maintenance of way and track improvements. Although the previous years have seen many improvements in and additions to the property of the Company, the work done in this direction during the past year has been far ahead of any previous year. In addition to the amount expended for 'additions to property' (see table F), and charged against net earnings, there were large sums expended for other additions to property, equipment, new sidings, station buildings, grade improvements, etc., and for more than the ordinary expenditures for maintenance, all of which was charged direct to the operating expenses."

The total amount expended for actual additions to real estate, tracks, shops, stations, etc., was	$830,066 58
For new engines, freight and passenger cars	620,270 51
For air brakes, steam heat, gas and electric lighting of coaches, etc	37,091 60
Total	$1,487,428 69

"The extraordinary increase in the Maintenance of Way expense was due to the pushing of the work on tracks, ballasting, cross ties, surfacing, etc., as early as possible in the spring in order to have the track in the best condition possible for the anticipated heavy travel to the Pan-American Exposition. The pushing of this work ahead of the usual time added some $250,000 to the normal expenses.

	1901.	*1900.*
The total revenue of the Company, from all sources, was	$17,816,646 09	$16,710,604 14
Expenses of operation, including taxes, track rentals and miscellaneous	14,096,182 81	13,282,491 32
	$3,720,463 28	$3,428,112 82
Interest on bonds	2,760,571 24	2,715,806 11
Net revenue	$959,892 04	$712,306 71
Additions to property	544,126 29	223,664 22
	$415,765 75	$488,642 49
Sinking fund charges and maintenance of steamers	112,629 77	68,543 48
	$303,135 98	$420,099 01
Dividend of 6 per cent on debenture 'A' bonds	210,000 00	210,000 00
Surplus to profit and loss account	$93,135 98	$210,099 01

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1901. Auditor's Report.—Additions to Property. (Table F)—

New passenger station, Decatur	$54,478 51
Freight house, East St. Louis	42,411 08
New side tracks	102,676 51
Relay passenger station, East St. Louis	3,125 00
Annex to Y. M. C. A. building, Decatur	1,735 29
Real estate—Peru	1,754 50
Real estate—Bement	1,935 92
Real estate—Litchfield	850 00
Real estate—Ferguson	3,609 10
Y. M. C. A. building—Moberly	9,102 38
Gravel pit near Simcoe, Ont.	10,668 12
Boody Hill grade	97,902 79
Double track—Bement to Sangamon	213,877 09
	$544,126 29

1902. President Ramsey's Report.—"It is with pleasure that I again lay before the Board an annual statement showing a continuation of large increases in the earnings of the Company and gratifying improvements in the condition of its property. The expectations of the continuation of prosperity during 1901-1902, set forth in the annual report of June 30, 1901, were more than realized, each month showing an unbroken record of increases. The estimate of earnings was exceeded by over $1,000,000."

"It may seem monotonous to repeat what has been said in our annual reports for the past several years about 'additions to and improvements to the property,' and yet, with the large increases in the gross earnings and small increases in the net earnings, it is only proper to show the owners of the property what has been done with the revenues." * * * "These general figures show an expenditure far above the normal repair requirements and examination of the detail maintenance statements will prove it. There has been a general increase in the rates of pay and wages of almost all branches of the service, particularly in shopmen, trackmen, agents, etc., until the average rate of wages is higher now than ever."

"While there have been large sums expended during the past few years for equipment, motive power, improvement to track, ballasting, reduction of grades, etc., the expenditures for these purposes during the past year being as follows:

For additions to tracks, shops, stations, real estate, etc.	$666,808 69
For new engines, freight and passenger cars (including sinking fund on equipment mortgage)	550,837 32
For air brakes, steam heat, gas and electric lighting	34,134 45
Total	$1,251,780 46

"Contracts were let and the work is now well under way for reducing the grades from 60 feet to 21 feet per mile at five points on the Middle Division, between Bement and Chicago, at a cost of about $250,000.

500 forty-ton 40-foot flat cars, steel under-frame,
50 locomotives—12 passenger, 32 freight and 6 switching—and about
50 coaches, chair cars and combination cars,

have been contracted for at an aggregate cost of about $1,500,000."

"The large increase in both freight and passenger earnings during the past few years—much larger, comparatively, than that of other roads in Wabash territory—proves the wisdom of the policy of the Directors and management to so improve the road and equip it that it could secure and transport economically and safely that portion of the traffic to which it was justly entitled. This policy should be continued until the property is in such condition and so equipped that it can be sure of its share of this traffic under any conditions of competition. All these expenditures must be paid for out of earnings."

1902. Auditor's Report.—Additions to Property (Table F)—

New yards, main, side and spur tracks	$205,538 31
Cost of property in Quincy, Ill.	178,203 46
Real estate	160,277 64
Changing grades on Chicago Division	7,021 41
New freight and passenger stations	32,458 78
Total	$583,499 60

The tables of Wabash "Mileage Statistics" which are published herewith are full of interesting percentages that will probably apply to most lines of railway.

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THE WABASH RAILROAD COMPANY.

MILEAGE STATISTICS—TWENTY-ONE YEARS.

Year.	Miles Road Operated.	Earnings Per Mile.	Operating Expenses Per Mile.	Net Earnings Per Mile.	Tons Freight Carried.	Tons Carried One Mile.	Rate Per Ton Per Mile. (cents.)	Expenses Per Ton Per Mile. (cents.)	Net Earnings Per Ton Per Mile. (cents.)	Freight Train Mileage.	Freight Train Earnings Per Mile.	Freight Train Expenses Per Mile.	Freight Train Net Earnings Per Mile.
1882	3,401.6	$4,954 05	$3,652 49	$1,301 56	5,911,012	1,247,611,320	0.951	0.694	0.257	8,599,680	$1 26.00	$1 00.70	$0 27.30
1883	3,587.5	4,715 02	3,827 76	887 26	5,859,566	1,263,790,522	0.948	0.787	0.161	9,486,987	1 26.28	1 04.79	0 21.49
1884	3,582.5	4,650 83	3,896 35	754 48	6,358,761	1,373,842,462	0.857	0.737	0.120	9,612,370	1 22.50	1 05.33	0 17.17
1885	2,912.3	4,738 26	3,995 80	742 46	5,556,571	1,183,951,136	0.802	0.699	0.103	7,736,106	1 22.98	1 07.16	0 15.82
1886	2,191.4	5,848 96	4,306 63	1,535 84	5,486,067	1,101,685,716	0.818	0.605	0.213	6,210,422	1 45.11	1 07.30	0 37.81
1887	1,989.5	6,745 50	4,757 22	1,988 28	6,409,301	1,075,047,063	0.855	0.623	0.232	5,767,149	1 59.32	1 16.15	0 43.18
1888	1,950.1	6,334 26	5,014 40	1,309 86	6,231,879	1,072,296,510	0.750	0.638	0.112	5,956,518	1 54.98	1 14.98	0 20.13
Year ending June 30													
1889	1,944.4	6,475 25	5,047 44	1,427 81	6,267,780	1,094,717,509	0.756	0.627	0.129	6,102,092	1 35.55	1 12.41	0 23.14
1890	1,922.3	6,945 30	5,082 11	1,914 19	6,832,358	1,430,197,332	0.647	0.479	0.168	7,288,082	1 27.07	0 94.07	0 33.00
1891	1,922.9	6,775 33	4,974 37	1,800 95	6,256,064	1,209,179,055	0.783	0.563	0.170	8,611,126	1 24.08	1 02.91	0 31.12
1892	1,916.8	7,506 95	5,651 38	1,855 59	6,928,051	1,390,510,161	0.705	0.554	0.151	7,561,799	1 30.65	1 02.68	0 27.97
1893	1,890.0	7,524 04	5,718 31	1,805 73	7,066,387	1,409,082,492	0.668	0.550	0.133	7,567,247	1 27.00	1 02.30	0 24.70
1894	1,885.4	6,485 20	5,079 25	1,405 95	5,414,994	1,097,585,279	0.696	0.607	0.091	6,256,098	1 23.25	1 06.40	0 16.85
1895	1,986.4	6,179 52	4,609 40	1,570 12	5,811,557	1,100,976,202	0.721	0.560	0.161	6,245,891	1 27.02	0 98.65	0 28.37
1896	1,986.2	6,614 58	4,773 58	1,841 00	6,100,710	1,218,785,857	0.696	0.520	0.176	6,313,782	1 34.32	1 00.36	0 33.96
1897	1,986.2	5,953 39	4,121 04	1,832 26	5,954,760	1,149,989,094	0.661	0.470	0.191	5,403,191	1 40.77	1 00.00	0 40.77
1898	2,051.3	6,407 54	4,514 03	1,893 51	6,382,831	1,365,698,174	0.634	0.447	0.177	6,306,504	1 36.17	0 98.80	0 37.37
1899	2,277.7	6,319 52	4,571 05	1,748 47	6,987,641	1,666,880,054	0.558	0.421	0.132	7,101,324	1 20.78	0 89.87	0 30.91
1900	2,339.5	7,027 57	5,106 83	1,920 74	8,080,220	1,902,881,278	0.558	0.425	0.133	7,075,158	1 50.05	1 14.31	0 35.74
1901	2,360.3	7,437 39	5,402 72	2,034 67	8,354,949	1,978,952,453	0.554	0.436	0.123	6,961,366	1 59.84	1 23.69	0 36.15
1902	2,428.0	7,815 21	5,679 83	2,135 38	8,678,608	1,947,404,142	0.694	0.463	0.141	6,841,121	1 71.96	1 31.78	0 40.17

WABASH RAILWAY MILEAGE STATISTICS

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J—*Continued.*

THE WABASH RAILROAD COMPANY.

MILEAGE STATISTICS—TWENTY-ONE YEARS—*Continued.*

YEAR.	Average Load Per Car. (Tons.)	Average Fr'ght Train Load. (Tons.)	Number Passengers Carried.	Number Passengers Carried One Mile.	Rate per Passenger Per Mile. (cents.)	Expenses Per Passenger Per Mile. (cents.)	Net Earnings Per Pas'gr Per M. (cents.)	Passenger Train Mileage.	Passenger Train Earnings Per Mile.	Passenger Train Expenses Per Mile.	Passenger Train Net Earnings Per Mile.	Average No. of Paying Passengers Per Car.	Average No. of Paying Passengers Per Train.
1882	9.68	145.07	4,251,898	166,196,560	2.878	1.804	0.509	4,942,209	$0 97.70	$0 80.80	$0 37.10	11.16	38.80
1883	9.58	138.21	3,906,665	154,727,718	2.498	2.190	0.308	4,306,465	1 00.26	0 69.04	0 30.82	10.89	31.79
1884	10.12	142.92	4,046,577	154,700,998	2.806	2.251	0.115	5,024,882	0 96.70	0 69.20	0 24.41	10.19	29.79
1885	10.36	153.24	3,180,644	138,274,372	2.314	2.247	0.067	4,525,662	0 91.13	0 68.65	0 22.48	10.22	29.55
1886	10.80	177.39	2,726,166	131,005,562	2.126	2.120	0.006	3,971,677	0 91.63	0 69.94	0 21.69	10.11	32.98
1887	11.01	186.41	2,802,086	143,762,871	2.212	1.923	0.289	4,108,310	0 97.41	0 67.41	0 30.00	10.67	35.04
1888	10.94	179.96	3,073,231	157,146,634	2.096	1.867	0.229	4,521,426	0 69.78	0 64.90	0 24.88	9.69	34.76
Year ending June 30.													
1889	11.08	179.40	3,069,772	152,404,045	2.150	1.989	0.211	4,525,896	0 88.65	0 65.28	0 28.37	9.89	36.67
1890	12.15	196.29	3,115,604	149,188,008	2.180	1.890	0.240	4,475,682	0 88.04	0 62.99	0 25.05	9.67	38.33
1891	11.51	182.90	3,416,676	149,904,208	2.178	1.842	0.336	4,559,766	0 88.16	0 60.57	0 27.59	9.11	33.88
1892	12.09	185.36	3,826,749	170,201,067	2.057	1.839	0.218	4,714,252	0 91.31	0 66.38	0 24.98	9.75	36.10
1893	12.28	186.20	3,934,916	177,119,065	2.009	1.727	0.282	4,805,338	0 91.87	0 63.67	0 28.20	9.98	38.86
1894	11.94	175.89	3,724,674	210,281,487	1.877	1.508	0.369	5,183,272	0 92.61	0 61.79	0 30.82	11.49	40.96
1895	12.26	176.29	3,404,771	189,472,829	2.146	1.979	0.167	4,917,128	0 77.30	0 56.13	0 21.17	8.41	33.88
1896	12.67	196.04	3,542,042	158,966,979	2.038	1.828	0.210	5,019,857	0 81.41	0 57.89	0 23.52	9.42	31.06
1897	12.86	212.87	3,149,170	135,963,860	2.067	1.895	0.192	4,823,090	0 77.57	0 53.43	0 24.14	8.75	28.19
1898	12.99	216.55	3,517,682	180,359,167	1.957	1.774	0.183	5,499,994	0 81.70	0 58.18	0 23 52	9.65	32.79
1899	14.33	255.12	3,751,019	210,592,989	1.897	1.610	0.287	6,270,751	0 79.42	0 54.06	0 25.35	9.91	33.58
1900	16.07	291.02	4,277,735	233,848,065	1.913	1.650	0.263	6,644,720	0 84.03	0 58.09	0 25.94	9.97	35.19
1901	16.67	309.00	4,943,016	264,268,214	1.885	1.558	0.327	7,237,318	0 86.14	0 56.89	0 28.25	10.58	36.51
1902	16.69	316.38	5,109,302	322,706,490	1.791	1.497	0.294	7,691,050	0 91.40	0 62.83	0 28.57	12.00	41.96

WABASH RAILWAY MILEAGE STATISTICS

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Compensation of Railway Stockholders

The purpose in quoting so extensively from the Wabash reports is to supply information that the reader can obtain in no other manner. The Interstate Commerce Commission in their volumes of statistics fail to show what part of the "operating expenses" go to additions to property. Poor's Manual fails to give this information, and the public press only hears the statement that "notwithstanding the great increase in gross earnings the operating expenses have been increased so that our stockholders are but little better off than during the hard times." The "poverty" of the stockholders may well be compared to that of the merchant who has substituted a six-story modern building for his old three-story building, paying for same with the profits of his sales. While the merchant's family may not have enjoyed the spending of the great profits of his sales, Dun and Bradstreet would have given him a much better rating in the business world—and his children might look forward with greater expectancy to that sad time when the head of the family passes to the better world.

As evidence of how facts are juggled by those whose interest it is to conceal facts the following from the Financial Chronicle is reproduced:

"While the public is impressed with long-continued increase in railway earnings, managers and investors are concerned in the steady increase in operating expenses and the consequent decrease in net earnings. Thus, for 106 roads summarized by the Financial Chronicle for November, with gross earnings of $106,144,000, comparison with 1901 shows an increase of $6,506,000 in earnings, an increase of $7,448,000 in operating expenses and a decrease of $941,000 in net earnings. For the eleven months to November 30, 103 roads, with an increase of $56,279,000 in earnings, show an increase of $57,525,000 in expenses, causing a reduction of $1,245,000 in net earnings. Some of the individual decreases are large: as, for November, the Pennsylvania System $1,086,000 and the Southern Pacific $465,000. A similar movement is indicated by a table in the New York Railroad Commission's report, for 21 principal roads, covering the three months ended on September 30, showing, compared with 1901, a decrease of $1,777,000 in gross earnings, an increase of $1,893,000 in operating expenses and a decrease of $3,670,000 in net earnings. It is to be remembered, also, that the increase in wages which is still expected by employes, if granted, will further increase operating expenses, and that very largely."

Let us presume, for argument's sake, that the *market* value of all of the stock of a railway corporation represents the value of the railway. The "capital stock" of the Wabash Railway in 1895 was $52,000,000, and in 1901 the "capital stock" remained the same. This is exclusive of other liabilities, such as bonds, floating debt, etc. This $52,000,000 may be compared to the real estate, fixtures and stock of a merchant, while the bonds, etc., are similar to the merchant's "bills payable." This indebtedness has varied but little since the reorganization of the road in 1889.

The following statement has been compiled from reliable authorities and shows the increase in market value of Wabash property owned by stockholders:

	May 2, 1895.	*April 30, 1903.*
Amount of common stock	$28,000,000	$28,000,000
Amount of preferred stock	24,000,000	24,000,000
Common stock quoted	6⅝	27½
Preferred stock quoted	15⅞	46½
Market value of common stock	$1,855,000	$7,700,000
Market value of preferred stock	3,810,000	11,160,000
Market value of total stock	5,665,000	18,860,000
Increase in market value of total stock		13,195,000

This statement means that if a man had bought all of the ownership (stock) of the Wabash Railroad on May 2, 1895, he could have secured it for $5,665,000, and if he had held it until April 30, 1903, he could have sold it for $18,860,000, his profit being $13,195,000—and this does not include any money he might have received in dividends on stock during the period covered.

Doubtlessly some railway companies have made a great deal more money out of the present prosperity, while others have not done so well. The Wabash may be taken as typical of the great progress made by all American railways.

Another feature of the progress and prosperity of railways is the increased holdings of railway securities by the railway corporations. While such stocks and bonds are "liabilities," upon which dividends or interest is supposed to be paid, when

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owned by the railway companies themselves they become "assets," from which revenue is supposed to be collected. Concerning this matter the report of the Interstate Commerce Commission for 1901 says:

"It is learned that of the aggregate amount of stocks and bonds outstanding on June 30, 1901, $2,205,497,900 were owned by railways in their corporate capacity, leaving $8,649,879,906 in the hands of investors other than railways. A comparison of these figures with the corresponding figures of the previous year shows that the railways of the country, during the year ending June 30, 1901, have increased their holding of corporate securities by $262,447,560. This figure results from the fact that the railways decreased their holding of bonds and increased their holding of stock, the decrease in the former case being $4,000,679, and the increase in the latter case being $266,448,239. These results are doubtless in part due to the reorganizations and consolidations that have taken place during the year. They indicate also, to some extent, the use which carriers have made of the surplus which an unusually successful year has placed at their disposal."

Economic Management and Prosperity

It is evident that the prosperity of railways is due to economic management and increased business. The principal features of the economic management have been: first, the reduction of wages of employes in train service in 1894, which, according to General Manager Hays' report, amounted to "7 to 10 per cent."; second, substitution of modern motive power and rolling stock for that formerly used, which made it possible to secure 50 per cent. greater service from train crews.

During all of this prosperity of the owners of railways it is well not to overlook the share of prosperity that has come to the employes of railways; therefore the following:

	1895.	*1901.*
Total number of employes in United States.	785,034	1,071,169
Total yearly compensation of employes....	$445,508,261	$610,713,701
Average yearly compensation of each employe	$567.50	$570.13
Average yearly increase of compensation of each employe.....		$2.63

This statement means that in 1901 each railway employe, as an average, received $2.63 more for his services than in 1895.

How the increased cost of living has affected the increased wealth of railway stockholders and employes it is not the purpose of this article to show.

The Men on the Engines

The men on the mighty engines,
They with the wakeful eye,
Trained to contempt for danger,
Born with the nerve to die;
With all the soldier's courage—
Firm as the heart of oak;
Weakness spurning and glory earning,
Higher than words e'er spoke.

Soldiers are heroes truly—
Deep from the heart we own—
Facing the shell and the mouth of hell,
With terrors to us unknown;
And soldiers are they truly
Who plow the commerce main—
Throttle and coals—God bless their souls—
The leaders of the train!

Over the lines of traffic—
Riding the narrow rail—
Ever obeying duty—
With never a thought to fail;
Theirs to lead the vanguard—
Day in and day out again—
Who in the world could call them else
But men—just men!

—Harry S. Chester.

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Plate VI—Nine and One-Half Inch Pump (Valve Action).

Plate VI of the Westinghouse Series of the Locomotive Firemen's Magazine Educational Charts shows sectional and perspective views of the valve action of the steam cylinder, with piston making the upward stroke.

Plate V (May Magazine) and Plate VI are identical, except that the former showed positions of the valves and the presence of live steam and exhaust steam on the *downward* stroke. Fig. 3, accompanying Plate V, is the same as Fig 3, accompanying Plate VI, and published herewith, except that the differential valves and the slide valve are shown at the right, instead of at the left, of their travel.

When piston *65* completed the last downward stroke it pulled the reversing rod downward, which pulled reversing valve *72* downward in bushing *73* (compare Figs. 1 and 2 in Plates V and VI). The immediate result was the closing of port *g*, Fig. 2, and the exhausting of the steam from chamber *D*, out through passage *h*, ports h^1 and *f*, passage f^1 (Figs. 1 and 2), exhaust port *d* (Fig. 1) and out through exhaust passage d^1 to the exhaust pipe of the pump.

As has already been explained, when steam is exhausted from chamber *D*, piston 77 being larger than piston *79*, the steam pressure in chamber *A* forces the two valves and their connecting rod, and the slide valve *83* to the right. (Study Fig. 3 in connection with Figs. 1 and 2.)

In Plate V the reversing valve *72* was at the upper end of its travel, which communicated live steam through port *g* and passage g^1 to chamber *D*. In Plate VI the reversing valve *72* is at the lower end of its travel, which has closed this port and passage.

In Plate V, Fig. 2, live steam is passing down through the ports and passage *c* into the upper end of the steam cylinder. This is because slide valve *83* is at the extreme left, uncovering port c^1. In Plate VI, Fig. 2, exhaust steam is passing up through ports and passage *c*. This is because slide valve *83* is at the extreme right, connecting port c^1 with exhaust port *d*, through the cavity under slide valve *83*.

In Plate V, Fig. 1, exhaust steam was shown passing upward from the lower end of the steam cylinder through passage b^1, port *b*, through the cavity under slide valve *83*, downward through port *d*, passage d^1, etc., to exhaust pipe. Plate VI,

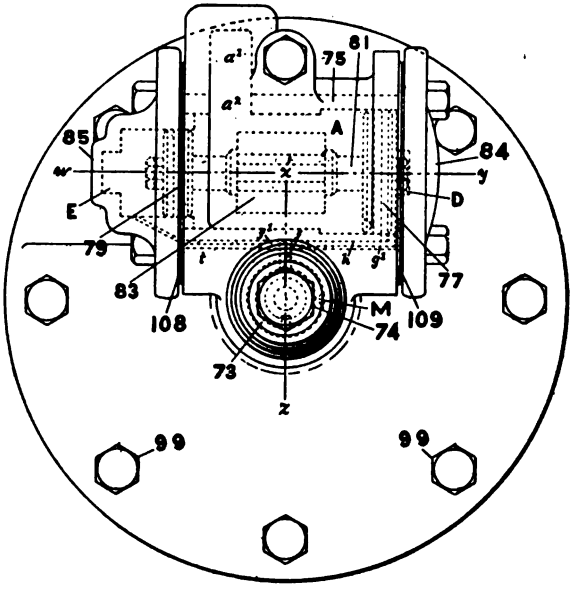


Fig. 3. 9½-Inch Air Pump (Valve Action)

Fig. 2, shows slide valve *83* at the extreme right, uncovering port *b*, and live steam is passing down from chamber *A*, through port *b* and passage b^1, to the lower end of the steam cylinder.

In both Plates V and VI, Figs. 1, chamber *E* is connected through the small passage *t* with the exhaust passage f^1 in bushing *75*.

As these plates show features not heretofore shown, attention is called to the chambers and passages *J*, *K*, *L*, *M*, *N* and *O*. In Plate V, live steam is shown in all of these passages, while in Plate VI exhaust steam is shown. This is because these passages are always in communication with the upper end of the steam cylinder through small round passage *O* in top cylinder head, Fig. 2; therefore, when there is live steam in upper end of steam cylinder it is also present in passages *J*, *K*, *L*, *M*, *N* and *O*, and when

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there is exhaust steam in upper end of cylinder there is also exhaust steam in these passages. As was explained in the May Magazine, chamber *J* is kept in communication with the upper end of steam cylinder in order that the reversing rod may be balanced and lubricated.

The "Third Man" on an Engine.

Railway and Locomotive Engineering takes issue with those who advocated legislation which would compel the presence of a third man on an engine, but as this excellent journal refers to *all* engines it is evident that the subject is not thoroughly understood, as the following from an editorial indicates:

"There is at the present time an agitation in favor of seeking legislative enactment which will compel railroad companies to place a special lookout man on every engine, in addition to the regular engineer and fireman. This agitation is no doubt the natural result of the recent terrible railroad accidents, particularly the one on the tracks of the Central Railroad of New Jersey, in which, it is said, a caution and a stop signal were both disregarded. The fact that such a law, if passed, would entail additional expense on railroad companies may possibly make it even more attractive in the eyes of a certain section of the community. It is well, however, before any such regulation receive government sanction, to consider the question from all sides."

The editorial then goes on to enumerate reasons why there should not be another man on an engine.

The especial legislation in which all locomotive firemen, most trainmen, and the public are interested is a law that will compel railway companies that operate double-cab locomotives to place an additional "watchman," "lookout," or whatever the companies please to call him, in the front cab, so that in the event of the engineer falling asleep, suddenly becoming disabled or overlooking a danger signal, there might be some one present to save the train crew and passengers from disaster. This "third man" asked for by locomotive firemen, trainmen and the public is not for "every engine," as suggested by the journal already quoted, but only for those engines which have two cabs, and in which the engineer is the only man "on the head-end."

For some reason, best known to themselves certain locomotive engineers strenuously oppose such legislation. For their especial benefit some official statistics will be quoted.

In the last report of accidents published by the Interstate Commerce Commission, known as "Bulletin No. 6," and which covers only the three months of October, November and December of 1902, a list of the "thirty-four prominent train accidents" are published. Of these thirty-four accidents, ten (29 per cent.) were caused by mental failures of locomotive engineers. The following are the items reported by the Interstate Commerce Commission; the number of "item" being the same as listed in the thirty-four reported:

Item 2.—Derailing switch; engineman asleep; he had been off duty fourteen hours, but had attended a funeral instead of taking rest. One person injured, $319 damage to property.

Item 4.—Derailing switch; engineman asleep; he was killed. One person killed, $2,240 damage to property.

Item 5.—Engineman saw a "dead" engine on sidetrack and by mistake took it for the head of a train which he was to meet. Two persons killed, five persons injured, $3,000 damage to property.

Item 6.—Crossing collision; engineman "lost his bearings;" on duty seventeen hours, $3,900 damage to property.

Item 8.—Engineman fell asleep; on duty eight hours succeeding twelve hours' rest. Fireman (fourteen months' experience) also at fault. One person injured, $4.050 damage to property.

Item 14.—Engineman did not heed red lights. Twenty-seven persons killed, fifteen persons injured, $6,889 damage to property.

Item 16.—Engineman disregarded distant signal indicating "caution;" man of good record and experience; weather clear; signal equipment complete. One person killed, twenty-eight persons injured, $9,000 damage to property.

Item 21.—Train passed automatic block signal indicating "stop." Engineman was asleep and fireman neglected to observe signals. Engineman and fireman of the second engine failed to detect the error, though rule required leading engineman to sound the whistle at each block signal. One person killed, $11,350 damage to property.

Item 25.—11.40 p. m.; engineman lost his location; experience fifteen years; but on this division only four and one-half months. One person killed, five persons injured, $12,600 damage to property.

Item 29.—Open draw; draw properly signaled; engineman of seventeen years' experience; on duty four hours, $17,000 damage to property.

The list of "thirty-four prominent train accidents" were not selected with regard to causes but with regard to the damages which resulted, and we find that more than one-third of the thirty-four were caused by mental failure of the engineer, which could have been avoided by another man whose duty it was to lookout for danger, for in addition to the ten

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accidents enumerated three more of the thirty-four were caused by engineers and conductors forgetting orders.

If there had been a third man on the engine whose especial duty was to look-out for danger and also to read orders, in addition to the destruction of life and property in the ten items enumerated, three "important" accidents, involving the death of eleven persons, the injury of twenty-five persons, and $53,000 damage to property, might have been avoided.

In how many of the accidents enumerated in the ten items "double-cab" engines were involved is not known, but "Item 14" is doubtlessly the Cranston wreck on the Jersey Central, where it is known that twenty-seven lives would have been saved by having a "lookout" in the front cab with the engineer.

It must not be supposed that a fireman, even though he is in the cab with the engineer, can look out for danger and attend to his duties as fireman. His attention must be devoted almost entirely to the fire-box, and after placing coal in a fire-box at night he is unable to see anything for some time. Nor must it be supposed that the engineer who *just once* makes a mistake is to be punished for his error. It is safe to say that no other men in the world have as much to burden their senses, and no men have been truer to the trusts imposed upon them. It is no reflection upon the integrity, skill or worthiness of locomotive engineers to assume that the lives of train crew and passengers should not be subject to the mental failure of any *one* man.

Railway and Engineering Review, an eminent railway technical publication, says in its issue of May 2, 1903:

In view of the fact that the demands upon the time and attention of locomotive engineers have largely increased in recent years, this journal some two or three years ago suggested that it might be wise to consider the advisability of putting an extra man on the engine whose duty it should be to observe and call to the attention of the engineer, anything that should be noticed by him. It is impossible, under the circumstances, for the engineer to constantly keep a lookout ahead, nor can the fireman, particularly on the heavier class of engines, give him material aid in this direction. It would seem, therefore, that a lookout whose business it is to see all signals, obstructions, or anything else which is necessary for the engineer to notice, and who should call his attention thereto, would be almost a necessity in railroad operation. Engineers are continually running by signals, but it is only when accidents happen that the public, and sometimes the railroad officials, know of it. At sea, where the things to be noted are infinitely fewer than on a railroad, such a lookout is kept on all vessels, although the man at the wheel has not a tithe of the things to distract his attention as has the locomotive engineer. Some roads are already seeking to partly cover the case by making it obligatory upon the part of the conductor to signal the engineer for a stop on orders notwithstanding the duplicate instructions are already in his hands. This has been adopted because occasionally engineers run by stations for which they have a stop order and at which a stop signal is also usually displayed. It is understood that the Southern Pacific proposes to put an extra man on the train to relieve the conductor from the duty of collecting tickets in order that he may be able to give more time and attention to the running of his train and see that orders are not overlooked. It would seem that inside of the rear car, or any other car on the train, was not the best place from which to direct its movements, and that the engineer aided by a man whose duty it is to take note of everything could better control that part of the service. Such a movement means extra expense but also, it is believed, that such a movement means a freedom from accident that would offset the expense many times over.



Railroad Accidents.

Accident Bulletin No. 6, of the Interstate Commerce Commission, covers the three months ending December 31, 1902. The number of persons killed in train accidents during the months of October, November and December, 1902, as shown in reports made by the railroad companies, under the "accident law" of March 3, 1901, was 266, and of injured 2,788. Accidents of other kinds, including those sustained by employes while at work, and by passengers in getting on or off the cars, etc., bring the total number of casualties up to 12,811 (938 killed and 11,873 injured).

Accidents to employes resulting in slight injuries which do not prevent the employe injured from performing his accustomed service for more than three days, in the aggregate, during the ten days immediately following the accident, are not reported.

The total number of collisions and derailments was 2,759 (1,680 collisions and 1,079 derailments), of which 282 collisions and 99 derailments affected passenger trains. The damage to cars, engines, and roadway by these accidents amounted to $2,462,056.

The Bulletin includes tables which show "casualties to persons," "collisions and derailments," "causes of thirty-four

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prominent train accidents," "rear collisions where block system is in use," etc.

Four of the accidents were caused by engineer sleeping, and three others are attributed to men being on duty very long hours.

"It is well recognized," says the Bulletin, "that the block-system or space-interval method of regulating the movement of railroad trains, the method that is required by law throughout Great Britain and Ireland, is a safer method than the time interval; and the fact has been touched upon in the annual reports of the Commission as well as in these bulletins. The records of the causes of rear collisions, which have been published, tend strongly to confirm this. At the same time it is everywhere understood that the block system itself depends on adequate care and discipline, and that defects in administration or inspection, or in apparatus, or negligence of enginemen or signalmen, sometimes lead to collisions where the block system is used. The fact that two or more serious collisions in the quarter under review occurred through failures of this kind emphasizes this matter, and a list has therefore been made of all the collisions occurring in this quarter which fall within this class. * * *

"It is matter for deep regret that again the number of coupling accidents reported is large as compared with the number for the preceding quarter, and very large as compared with the corresponding quarter of 1901. It is quite possible that the reports made by the railroad companies for the first few months of the operation of the accident-report law were incomplete. In the matter of collisions, and to some extent as regards other accidents, it was found that some roads had deliberately omitted from their reports certain accidents which, when their attention was called to the fact, they said they understood could be rightfully omitted, because the train affected was engaged in traffic wholly intrastate. It was claimed that such traffic was not subject to a Federal law. Care was taken to correct this erroneous view, and the accidents in question were included in supplemental reports.

"It is probable, however, that many such cases were never discovered. A company which has omitted collisions and subsequently corrects its practice in this respect will, presumably, correct its practice in regard to reporting coupling accidents, though at the same time it may not go back and revise its reports of those classes of accidents concerning which the Commission has made no complaint.

"The amendment to the safety-appliance law, which was passed at the last session of Congress, will correct erroneous views held by many railroad officers as to what trains and train operations are and what are not subject to a Federal regulating statute. This law deals only with couplers and air brakes, but the principle laid down—that a Federal law regulating interstate commerce affects all of the train and car movements on a railroad line over which interstate shipments are carried or interstate passengers travel—is of wider application; particularly when the purpose of Congress is to obtain information.

"The increase in the number of coupling accidents is undoubtedly to be accounted for largely and perhaps chiefly by the enormous increase in freight traffic and the consequent necessity of employing additional men. This fact was mentioned in the last bulletin. New men ought to be at first employed at such places and in such departments of the work as are the least dangerous to those who are inexperienced; but, in the stress of work occasioned by the congestion of coal traffic and by blockades at many places this rule has evidently been ignored. This tends to increase the number of casualties. The increase in freight traffic, putting unusual burdens on all departments of train and yard work, including the department of car inspection, also results, no doubt, in a less efficient condition of cars. Couplers and other parts are not so well cared for and maintained.

"It is also to be noted that the swelling of the accident records by reason of the inexperience of new men may, and probably does, go on after the increase in the volume of traffic has reached its climax; for the enlargement of the number of train crews, yard crews, etc., has usually been inadequate at best. It has been observed that certain companies have engaged new men as fast as practicable, and in every way have striven to provide forces adequate to perform the work; but that these efforts were only partly successful, as is evident from the constant pressure on all the trainmen, old and new, to work as many hours daily as possible. It has therefore been necessary to continue adding new men after the capacity of the railroad and of its stock of locomotives and cars has been fully taxed and the increase in tonnage therefore stopped.

"It will be observed that other accidents to trainmen have also increased

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largely, so that there is no ground (other than the lack of perfect maintenance due to congested traffic before referred to) for assuming that the coupling accident record indicates any increase in the risks or dangers of coupling work, or any change for the worse in the condition or quality of couplers.

"The law just passed by Congress (March 2, 1903,) facilitating in a marked degree the enforcement of the safety-appliance act, and putting engines, cabooses, and cars—all vehicles in ordinary railroad traffic—on a uniform basis as regards this act, will, it is confidently believed, produce a decided improvement in conditions."

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High-Speed Long-Distance Electric Railways.

The illustrations of cars used by the Chicago, Aurora and Elgin Electric Railway, published herewith, impress upon the reader the rapid development of electricity in railway service. Descriptive of the latest advance, the Scientific American says:

"The car on the right shows what we may expect in the immediate future. It is one of a large number in course of construction for the Aurora, Elgin and Chicago line. A car of this type recently ran from Chicago to Aurora—a distance of 35 miles—in 34 minutes, or at a speed of nearly 62 miles an hour, including several slow-downs. The lower illustration represents the first shipment of ten of this type of cars, built by the John Stephenson Company. The floor frame is of steel, on which a body of wood is mounted. There are two compartments in each car, one of which is the smoker, and the other for the ordinary passenger service. Between them comes a toilet room. The ends are completely vestibuled, and arranged in a manner somewhat similar to those of steam coaches. For the interurban service the third rail is used, but within the city limits, where they use the street railroad tracks, the cars are provided with the usual trolley pole at each end. Running, however, in pairs, they are all provided with end entrances. The cars without electrical attachments are used as trailers. These cars have been designed and built to maintain a speed of 70 miles per hour and upward."

♣ Odds and Ends ♣

Notes.—A press dispatch dated Los Angeles, Cal., April 16, 1903, says: "Announcement was made today from the headquarters of the Santa Fe System in this city that that road would soon install oil-burning locomotives on the Seligman-Winslow Division in Arizona, adding about 146 miles to the mileage now covered by oil-burning engines on the Santa Fe System. The change will increase the Santa Fe's consumption of fuel oil from 30,000 to 35,000 barrels per month. The company will then be burning a total of from 140,000 to 150,000 barrels, all of which is supplied by its own wells in this State."

The Chicago, Rock Island and Pacific Railroad is said to be making preparations to remedy a weak place in the equipment of that system, and are adding locomotives at the rate of about twenty per month at a cost of about $300,000 per month.

The C., R. & M. R. R. is said to be getting ten new freight engines of the "Consolidation" type, each costing $17,000. The engines are being built by the Baldwin Locomotive Works, and their weight is 170 tons each. It is also stated that the Baldwin Locomotive Works have been given orders for ten new passenger engines of the latest type and capable of great speed.

An exchange says that the Pennsylvania Company has been experimenting with a new form of telegraph instrument, wherein the sender is much like a typewriter and at the other end of the line the matter is received in typewritten form.

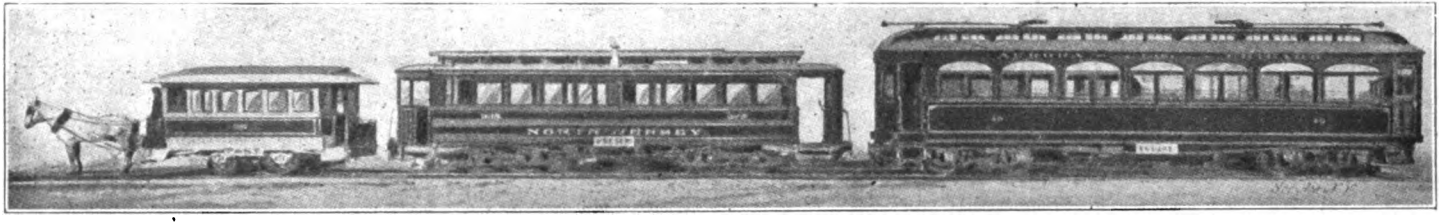
The Baltimore and Ohio Railroad is said to be getting two 150-ton electric motors for service in the Baltimore tunnel. It is expected that with the three 96-ton motors now in use it will be possible to haul all passenger and freight trains from Camden station to the top of the grade without the assistance of locomotives.

It is said that the Chicago, Burlington and Quincy Railroad Company has had a locomotive fitted with an air grate shaker, a device by which the grates are shaken by pneumatic means.

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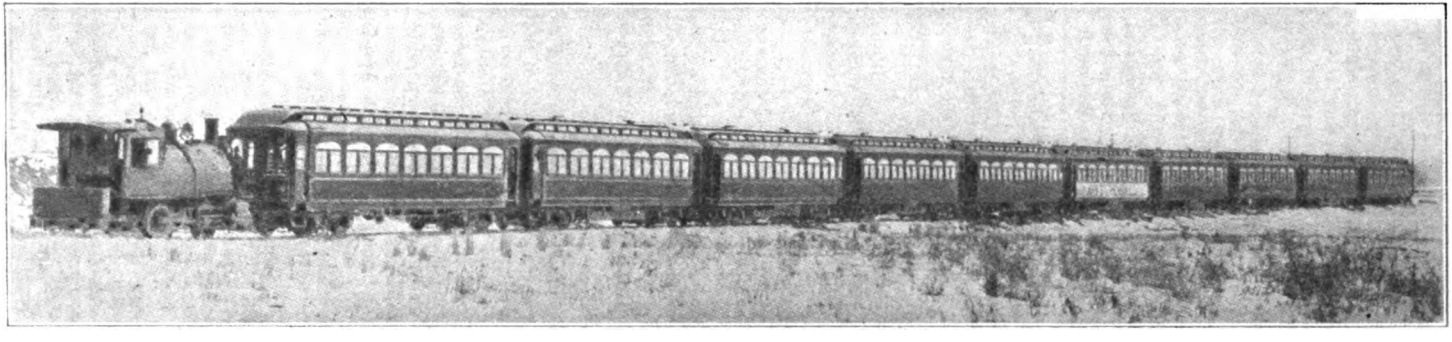
Vanderbilt Fireboxes Discarded.—Several locomotives were equipped with Vanderbilt

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Past Present Future

THE EVOLUTION OF THE CHICAGO, AURORA AND ELGIN RAILWAY



FIRST SHIPMENT OF HIGH-SPEED ELECTRIC RAILWAY CARS FOR THE CHICAGO, AURORA AND ELGIN RAILWAY

(From Scientific American)

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fireboxes and assigned to service in California on the Atchison, Topeka and Santa Fe Railway, where oil is the fuel used. These boxes were found to bag down severely after a limited period of service. After considerable experimenting it has been decided to replace this type of box with one of the usual pattern.—Railway and Engineering Review.

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Practice Displaces Theory.—After harassing railway employes for several years with multi-colored yarns, crazy quilts, and a lot of other senseless stuff, the theoretical "doctor" as an examiner of eyesight is giving way to practical and sensible methods of testing the vision.

"The Central-Hudson is now giving its engineers a practical eye test," says a report. "When enginemen are called to Albany to undergo the sight test they are taken to the signal tower and the blades of the tower bridge operated in various manners while the engineman stands a half-mile away and is obliged to tell the man who supervises the test the various movements that are being made. Besides being called upon to observe the tower signals the enginemen are compelled to go through a flag test, the man with the flag standing under the tower, while the man undergoing the test stands a half-mile away and is compelled to tell the manner in which the flag is being manipulated. The test is considered fair by the men and is regarded as being eminently practical."

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Telegraph Cheaper than Mails.—Those who advocate the government ownership of the telegraph have claimed that the government would reduce the price per message or word just as it has reduced the price of transmitting mail matter. This has been denied by those who favor ownership of the telegraph business by corporations. The following from the Telegraph Age is interesting:

"It is remarkable how much telegraph business is transmitted by private concerns over their leased wires, writes a superintendent of telegraph. Houses which employ none but first-class operators and conduct their business in an intelligent and economical manner, state that they are enabled to handle messages at an actual cost of not over two cents each. The rate is so low that it does not pay to make use of the mails. Of course addresses and signatures are cut down to one or two letters each where the volume of business to handle is large, but the fact remains, nevertheless, that in handling private wires understandingly the telegraph is cheaper than the mail."

Kid Operators.—In commenting upon a disastrous wreck, in which a boy telegrapher takes prominent place, the Railroad Gazette says:

"With the Government official (American or English) and the sociologist, if he ever gets down to such a prosaic matter, the first remedy will be to forbid the employment of boys for such grave responsibilities. It is true that many a boy of 18, or even younger, does brilliant work in a telegraph office, and that in a year and a half a thousand things can be learned. But there must be a limit somewhere to youthfulness, and what more rational limit than the age of 21? The practical effect of this would (or should) be to compel a longer period of apprenticeship in signal cabins and telegraph offices, and perhaps a higher average rate of wages. There can be little doubt that this longer apprenticeship is an important element in the safety-record of the English railroads. If a Government authority were to prescribe a youth-limit it would not be likely to set it below 21; and if influenced by the trade union spirit might make it higher. At all events, the lower the limit the greater the responsibility on the railroad company to show that new men are thoroughly trained."

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A Fake Sensation.—The public press, and some technical papers, have published columns of matter about a "great sink hole" encountered by the Central Pacific in constructing its line across the Great Salt Lake. Now the sensation collapses, according to the following statement by the chief engineer, Mr. William Hood:

"The yarns and fake stories circulated from Salt Lake City about difficulties and disasters attending the building of the Central Pacific cut-off from Ogden to Lucin are without foundation. I have never heard of any scientist examining the so-called peculiar and wonderful bottomless pit for Mr. Harriman, nor did I even know that any bottomless holes existed in the bottom of Great Salt Lake along the line of our improvement.

"As a matter of fact, we have experienced less trouble from the settling and sinking of material dumped into the lake than is frequently encountered in work of this character. Everybody knows that there is most always more or less settling of material dumped into water and the only thing to do is to keep on adding to the mass until it stops settling. The Salt Lake fill has really been very easy to handle and a small percentage only of material deposited has sunk or settled, thus eliminating many mishaps and trouble often attending even ordinary construction work along railroads. The story that we have driven pile after pile one on top of the other, in an attempt to find solid ground for a roadbed foundation, is too silly to talk about.

"Another thing, the company has never lost an engine or car through sinking into

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the lake, nor has even an engine or car ever been splashed with water or mud. Every bit of work done so far has remained intact and we are progressing toward completion in a manner satisfying to the highest degree. Four great steam shovels are at work loading dump cars with material and are depositing between 110,000 and 120,000 cubic yards of rock and earth along the fill every week. This fill is about 26 miles long, of which 11 miles is to be on a trestle and about 15 miles on solid filled-in ground. The trestle will bridge the deeper portion of Salt Lake where the water is about 30 to 35 feet deep. The trestle will be completed in about two months, or a trifle more, but it will require a longer time to do the filling of the solid portion of the cut-off. Eventually the entire thing will be solid ground, as we intend to deposit material until it is all solid. If we waited to do that now it would take too long, as we want to get trains operating over the new line as soon as possible or long before the beginning of next year. We will save about 43 miles in distance over the present route via Promontory when the cut-off is opened for traffic. I wish to state absolutely that all of these stories about vast unnecessary expense and trouble attending our work on this improvement are false in every detail and nearly all of the yarns I notice started from Salt Lake City, where we have some enemies who have a grievance against the company because it did not care to build 65 miles of track around the southern shore of Salt Lake into Salt Lake City. Quite a number of people there are resentful towards the company and its fill and cut-off.

"No secrecy has ever been maintained about our work, which some reports state has been the case, for fear something might be found out about our 'terrible sink holes.' That story, no doubt, originated because I have issued strict orders that no person shall be allowed around the work or on work trains without a special permit. I do not allow any superintendent even to grant this permission, because it is unsafe to let people on premises where big construction is being carried on. I simply did this to avoid accidents and not to conceal anything, because there is nothing to hide. We have a complete electric light plant and the work is carried on night and day.



AN APRIL SNOW BLOCKADE

Bucking snow on the Rio Grande Southern, April 3, 1903. Lizzard Head Peak in the background

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A New Headlight Screen.—It is said that a new headlight screen has been invented by a Toledo man whereby, through a lever located conveniently in the cab of the engine, the engineer may throw a red or green screen over the headlight, the red screen to indicate to the engineer of an approaching train that his train is on the main track, and the green screen to indicate to the approaching engineer that the train on which it is displayed is on the siding. The red screen may also be used as a danger signal.

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Railway Employes Disfranchised.—The following is from the Railway Standard of Melbourne, and while very funny in style, is quite serious in fact:

"In Victoria a public servant may not vote for members of the State Parliament, though, when naturalized, Chinese, Japanese, Hindoos, Turks, and even Kurds, may have their political way.

"If I were a native of Cairo,
Or a Jap, all the way from Tokio,
A Karaikapak, or a Koriak,
If my skin were but copper, or yellow or black,
Not in vain for a vote would I sigh O!
But since I've not come from Ishogo,
From Congo, Hong Kong, or Ugogo,
Ashantee, Mozambique, Washutee, Martinique,
I'm expected to swallow my views and be meek,
For in politics further I've no show."

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Lubricating Ropes.—Graphite is stated to be an excellent preservative for manila rope. One rope manufacturer treats the inner yarns of each strand, as well as the core, in a bath of lubricant, the ingredients of which are graphite and oil. This lubricant thoroughly premeates all the fiber, thus overcoming internal wear, while sufficient comes to the surface to afford ample protection against injurious outside agencies, and the lubricant does not injure the rope. The oil is used as a vehicle to convey the flakes of graphite, and as long as the strands and yarn remain together they are thus kept soft and pliable. Ropes so treated are self-lubricating, and need no external dressing.—Railway and Engineering Review.

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Air Brake Tests.—Some very interesting tests of efficiency in making emergency stops with the Westinghouse High-Speed Brake and the New York Improved Triple have been made by the engineer of tests of the Southern Pacific on one of its California divisions. While the tests resulted slightly in favor of the New York Improved Triple, the fact that neither manufacturer was represented and the test was disinterested, makes it possible that another test might result differently. This test is sufficient to create great interest in the improved New York Triple, and it is hoped that additional and thorough tests will be made in the near future, at which both manufacturers will be represented. The difference between an average of 1,104.7 feet and 1,126.3 feet is but slight and might be occasioned by any number of conditions between tests of the same equipment. If the same train, with idontically the same equipment, were subjected to two tests under what was thought to be identically the same conditions, there might be this much difference in making a stop from a sixty-mile speed. The heating of the brake shoes and wheels, or the removal of foreign substance from the track by the first test, or a drop of oil falling on the track, or any one of many unimportant conditions would probably cause as great a difference as was shown in the Southern Pacific tests; in fact, the three tests of the Westinghouse equipment, in making the emergency stop from sixty miles an hour, varied as follows: First stop, 1,095 feet; second stop, 1,169 feet; third stop, 1,115 feet.

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Entitled to a Share.—The railways of the entire country, with scarcely an exception, are now earning and paying dividends on a capitalization liberally inflated above the actual cost to the existing companies, mostly reorganizations, since the panic of 1893, of the properties which they own and operate. Railway lines are doing marvelously well and everybody employed is entited to fair and adequate remuneration for his services.—Tacoma (Wash.) News.

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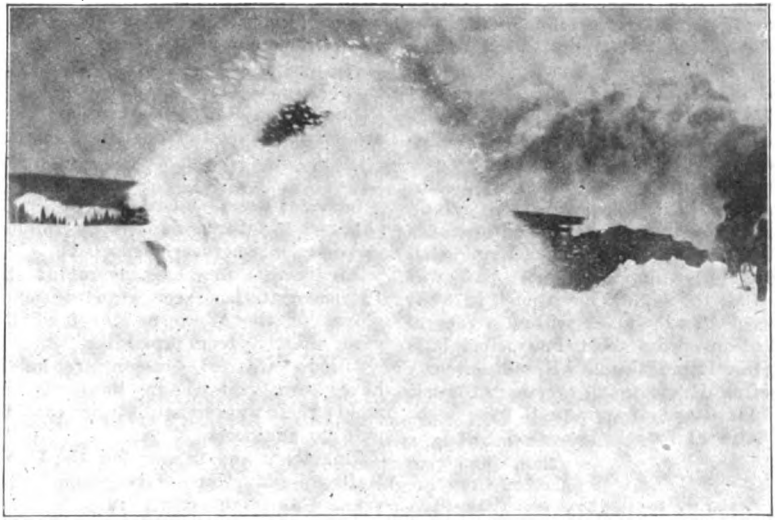
Wood vs. Metallic Ties.—The Pennsylvania Railroad Company is said to have been experimenting with a new style of track on its Fort Wayne Division, the track being laid on a pressed-steel girder of trough shape, with channel spacers to maintain the gauge and rail fastenings, without the use of bolts, wedges or other movable parts, providing a solid track with lighter ballast than is required with wooden ties. The Altoona, Pa., Mirror, of April 23, 1903, says: "Railroad managers of several big systems in the United States are practically convinced that wooden ties will never be supplanted by metal ones. At least, the change will not take place at present as experiments have been made which prove the inefficacy of the metal ties of the present day, as compared with the long used, wooden article. One system in particular that has reached this conclusion is the Pennsylvania Railroad Company, which corporation in the past few years has spent thousands of dollars making thorough tests of steel ties manufactured in both the United States and Canada. Their investigation has proven, in the minds of the higher officials, that it is impossible

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to replace the wooden ties with the metal ones at the present day with any advantage to the railroad company."

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A New Observation Engine.—The Lake Shore Railroad, according to the Laporte (Ind.) Herald, of April 22, 1903, is transforming a standard engine into an observation engine, or car. A car is to be placed over the boiler of the locomotive, affording room for several persons when on tours of inspection. Winding stairs, starting from in front of the cylinders, lead to the entrance door which is in front. The car is to be lighted by electricity, and telephonic communication will be had with the cab and coaches behind. Some peculiar features, necessitated by the construction, are said to be the placing of the air pump under the running board on the right side and the whistle under the running board on the left side.



AN APRIL SNOW BLOCKADE

Bucking snow on the Rio Grande Southern, April 3, 1903

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New York Air Brake Instructions.—Early in April, Mr. J. P. Kelly, of the New York Air Brake Company, and formerly road foreman of engines on the Chicago and Alton Railroad, made a visit to Bloomington, Ill., and spent two evenings delivering lectures and instructions upon the New York air brake equipment, illustrating the various New York valves, in all their operating positions, with the aid of a stereopticon lamp. The attendance at each lecture was very large. Mr. Kelly lived in Bloomington during the time that he was employed on the Chicago and Alton Railroad and was, therefore, well known to those who attended.

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The Tyranny of Government Ownership.—The following is from the Railway Standard, of Melbourne, Australia:

"When the members of the Irvine Government, aided and abetted by the metropolitan daily press, first set about fomenting public opinion against the unfortunate employes of the State, the main reason advanced for their retrenchment proposals was that the service was overmanned. Four thousand surplus hands, said Mr. Shiels, descending from rhetorical figures to plain numbers, but not deigning to furnish any evidence of their accuracy. Thirteen hundred too many in the Railway Department, affirmed Mr. Bent, too, without proof, and in face of the notorious fact that men throughout the service, and especially in the traffic and locomotive branches, were, and had been for months, working long hours overtime, some with, but many without, extra pay. Similar hours of labor in any of

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the private railways of Great Britain would have been condemned by the British Board of Trade as inhuman, and prohibited as a menace to the safety of the traveling public.

"To save these 1,300 mythical hands from losing their 1,300 mythical billets percentage deductions were levied on salaries and wages, passes and privilege tickets were stopped, and other highly-valued rights and privileges filched from employes. Following on these injustices, in order to lend a semblance of truth to what daily happenings were manifesting was an unscrupulous lie, the Ministerial fiat went forth, once more to save the mythical 1,300 from losing their 1,300 mythical billets, that the staff would be put on short-time short pay, and this, too, at a time when the brain, nerve and muscle of the service was being strained almost to breaking point in the brave but thankless endeavor to cope with the starving-stock traffic. Of course, under the conditions prevailing, the order could not be given effect to any comprehensive extent. In most cases its victims made up for a short day by working longer than usual on the following, but their pay was docked all the same. Even now, in what is regarded as the slack season, a general application of the short-time principle is altogether impracticable without seriously neglecting important necessary work, which, if not done now, will have to be done later at greatly increased cost."

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Legality of the Pension System.—The Indianapolis (Ind.) News of April 17, 1903, says: "The legality of the relief department of the Pennsylvania Railroad Company is being questioned by a Toledo attorney, who says that the case will be carried to the highest court, if necessary. He represents a woman whose husband was killed while in the service of the company, and his contention is that the employes, and not the company, stand the expense of the relief, and that, for this reason, the company is fully liable for a death, in addition to the relief the 'pension' department provides."

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Stock Market Pool for Railroad Employes.—The Greensburg (Pa.) Tribune of April 21, 1903, has the following: "Speculatively inclined officials and employes of the Pennsylvania Railroad Company, who organized a stock market pool about ten months ago, have been so successful in their operations that they have incorporated their pool as the Penn Securities and Investment Company and secured a New Jersey charter. The charter was granted yesterday.

"The members of the pool each paid in $5 a month and the money was invested in the stock market by a finance committee that controlled its funds. The members of the pool paid their dues of $5 a month to the Commonwealth Trust Company, which acted as fiscal agent of the pool. So far each member has put in $50 in all and the pool has done so well in its speculations that each member's share now amounts to $75, a winning of 50 per cent. The stocks bought have included Westinghouse stock, Commonwealth Trust, Fidelity Title and Trust and some other local securities. All the operations of the pool, which has now 260 members who are all employes of the Pennsylvania Railroad and their friends, are managed by the finance committee."

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Increased Wages.—Based upon information obtained from press reports the following increases in wages are reported:

An increase in wages, averaging about 10 per cent. has been granted the employes of the Western Maryland Railroad, effective from April 1st.

Illinois Central firemen are said to have been granted an increase which makes their wages about 60 per cent. that paid to engineers.

Engineers and firemen on the Central Railroad of New Jersey have been granted an increase in pay, besides modifications in the rules governing employes, which makes their condition greatly improved.

An average increase of 25 cents per day has been granted in the readjustment of wages of employes of the Bessemer and Lake Erie Railroad.

It is said that the engineers and firemen on the Baltimore and Ohio Southwestern Railroad are to be given an advance in wages averaging about 15 per cent.

Effective April 1, 1903, the engineers and firemen on the Denver and Rio Grande, and Rio Grande Southern Railroads were granted an increase in pay, besides better working conditions. Classification of pay of engineers is abolished and they will receive full pay from the first day after promotion.

An advance in wages had been granted employes of the Duluth, Missabe and Northern Railroad, effective May 1st,, as follows: Freight trainmen 15 per cent.

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and passenger trainmen 12 per cent. over last year's schedule. The engineers and firemen are also to receive an advance based on the larger class of engines that have been put in use on that road.

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Railroad Accidents.—Exchanges report accidents to have occurred recently as follows:

A collision between a special train of the northern division of the Burlington Railroad and a switch engine occurred on a bridge between La Crosse and Grand Crossing on the night of April 23, 1903. Several officials of the road were injured, and both engines and the special car were badly damaged.

Two freight trains on the Rock Island branch of the Chicago, Burlington and Quincy Railroad collided between Lynn and Opheim, 20 miles north of Galesburg, Ill., April 14, 1903, resulting in the death of one engineer. One fireman was missing and was thought to be under the wreck. Three engines and many cars were wrecked.

A head-end collision between a passenger train and a freight train on the Big Four Railroad occurred at Rose Hill, Ind., on the night of April 2, 1903. One engineer was killed, and one engineer and several trainmen were injured.

Two freight trains on the Central Vermont Railroad collided on the morning of May 7th, at Milton, resulting in the death of one fireman and the serious injury of one engineer, one fireman and two brakemen. Both engines and a number of cars were badly wrecked.

A head-end collision between passenger trains at Mayville, Mich., on the Pere Marquette Railroad, May 4th, resulted in the death of one fireman and one baggageman, and the probable fatal injury of one engineer. Six other trainmen and postal employes received injuries.

The Southwestern limited on the Big Four Railroad ran into an open switch at Ivorydale, near Cincinnati, Ohio, May 13th, killing the engineer. A switch engine was standing on the siding at the time. Both engines were badly damaged and the baggage car was thrown from the track. One woman passenger was painfully injured and the other passengers were shaken up.

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Papa on Parade

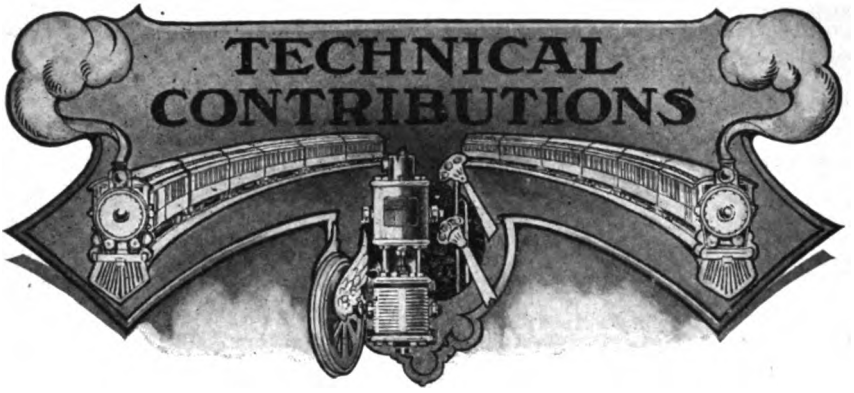
She stood among the surging crowd that lined the ancient street,
Where Labor's hosts by thousands marched with steady, tireless feet;
Her hair was wavy golden when the truant sun shone out;
Her lips had not forgotten yet their rosy baby pout;
Her little feet were tapping as the band went booming by;
The ever-flowing tide of men she watched with eager eye.
She laughed when like a big balloon the fat clown onward swayed,
And when the monster cart-dog growled she shrank back, half afraid.
But evermore her clear blue eyes kept looking down the street,
As if some one was coming she could hardly wait to meet;
And, when a mass of white-frocked men came tramping swift and strong,
The blue eyes saw the one she loved in all that mingled throng.

"There's papa; there he comes!" she cried. Her voice was like the trill
Of birds that sing in June; then flutelike, clear and shrill,
"Here, papa, here I am!" she called, and then the little miss
With dainty fingers touched her lips and wafted out a kiss.
The man was tall and big and strong, his muscles stood like steel;
But deep within his mighty chest his heart knew how to feel;
A smile was on his bearded lips; a tear shone in his eye;
He gently waved his massive hand as he went marching by.

Oh, more than all the host that passed below the golden dome,
And more than banners, mottoes, bands, speaks Labor's love of home;
It is the sure foundation which the master builders know,
The rock on which our nation to a temple fair may grow;
It is the bond unbreaking which forever shall unite
The men whose deeds are making every wrong bow down to right;
It is the hope that brighter shines above our weary way,
And every heart grows lighter with the dawning of its day.

—John M. Hull in the C. E. World.

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The Vauclain Two-Cylinder Compound Locomotive

A PREVIOUS article described the Vauclain four-cylinder compound locomotive. The Baldwin Locomotive Works also build a two-cylinder compound, and the construction of this engine will now be explained.

As previously stated, one of the notable features of the Vauclain type is that the mechanism is exactly alike on both sides of the locomotive. In this respect all two-cylinder types present a strong contrast. Necessarily the high pressure cylinder must be placed on one side of the machine and the low pressure on the other. It is therefore impossible to obtain the same advantages of similarity noticeable in the four-cylinder type.

The two-cylinder compound can be operated as a single expansion engine when desired; the mechanism for changing to compound being under the control of the engineer. This mechanism consists of two valves, known as the "intercepting valve" and the "reducing valve." As might be supposed, the function of the intercepting valve is to divert the exhaust steam from the high pressure cylinder direct to the atmosphere, when the engine is working single expansion, and to pass this exhaust steam to the low pressure cylinder when the engine is working compound. The function of the reducing valve is to admit live steam to the receiver leading to the low pressure cylinder, when the engine is working single expansion. As the low pressure piston is larger than the high, it is clear that the steam pressure acting on it must be reduced in order to equalize the work on each side of the engine, and this is accomplished by the reducing valve, so that an equal amount of work is done on both sides of the locomotive.

Having now mentioned the principal features of the engine, the arrangement will be described in detail. Figs. 13 and 14 are respectively side and front views of a Baldwin two-cylinder compound designed for heavy freight service. It is seen that the high pressure cylinder is placed on the left side of the locomotive, and the low pressure on the right side. The pistons, crossheads, guides, etc., are similar to those used on a simple engine, and balanced slide valves control the steam distribution to both cylinders. The valves are operated by means of the usual link motion.

Fig. 15 is a front view showing the general arrangement of the cylinders, saddle and smokebox. The low pressure cylinder casting is similar in construction to that used on a single expansion locomotive. The intercepting and reducing valves are both located in the high pressure casting, and these valves are of the piston type, with their axes running lengthwise through the casting. Live steam from the boiler is conveyed through the smokebox in a single steam pipe, which is placed on the left side, as shown, and leads directly to the high pressure cylinder. The chamber marked "Receiver," with the pipes leading to it, is located in the smokebox extension, and is the connecting passage between the high and low pressure cylinders. Its function is to provide a reservoir for the steam when passing from one cylinder to the other, and in this respect it may be compared to the valve cavity on the four-cylinder engine. The receiver, which is

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oval in cross-section, is supported by brackets bolted to the smokebox, as shown. When the engine works single expansion, the reducing valve is open, admitting steam from the live steam pipe into the receiver, and at the same time the intercepting valve opens an auxiliary exhaust passage, through which the steam, leaving the high pressure cylinder, escapes up the stack. When the engine is working compound, steam flows through the single steam pipe to the high pressure cylinder, drives the piston there, then passes through the receiver, and after driving the low pressure piston escapes up the stack, the course being indicated by the arrows.

thence to the low pressure cylinder, the remainder of the steam flowing on to the high pressure cylinder. The intercepting valve is in such a position that the exhaust steam from the high pressure cylinder, flowing into space *A*, as indicated by the arrows, passes into the auxiliary exhaust passage *B* and thence up the stack, communication between the high pressure cylinder and the receiver being entirely cut off. While this state of affairs exists, it is the duty of the reducing valve to automatically regulate the supply of steam in the receiver so that the total pressure on the low pressure piston equals that on the high. To accomplish this, port *E* is provided, through which

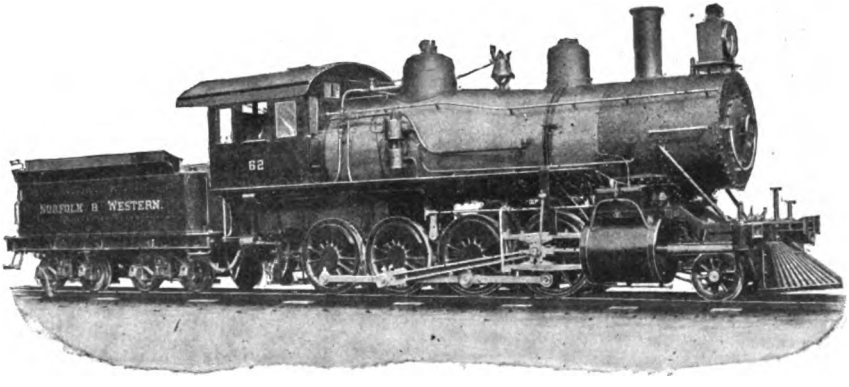


Fig. 13. Baldwin Two-Cylinder Compound Locomotive

Bearing these facts in mind, the reader is referred to Fig. 16, which is a section through the intercepting and reducing valves, and shows their position when the engine is working single expansion. The valves are placed in bushings which have suitable ports cut in them, and their action is controlled on one side by means of coiled springs, and on the other by the pressure of the steam admitted through the operating valve. The small pipes marked *D-D* lead to this valve, which is located in the cab, and is closed when the engine works single expansion; hence there is no pressure in these pipes when the valves are placed as shown in Fig. 16. *A* is the intercepting valve, which consists of two pistons separated by a distance bar, and which is held in its position by the coiled spring placed in front of it. *C* is the reducing valve. Live steam flows from the steam pipe into the passage on the right, and a portion enters the opening *H* through the reducing valve, passing upward to the receiver, as indicated by the arrows, and steam flows from the pipe leading to the receiver, and, lifting poppet valve *F*, passes through the small passages shown to the large end of the reducing valve piston, at the same time holding poppet valve *G* on its seat, so that there is no communication with pipe *D*. If the receiver pressure becomes too great, the reducing valve piston is driven to the right against the coiled spring, partly closing the ports in the bushing at *H*, and reducing the amount of steam admitted to the receiver. Should the receiver pressure become deficient, piston *C* is driven to the left, opening port *H* wide, and admitting more steam to the receiver. In order to assist the reducing valve in regulating the supply, a relief valve, set to blow off at the maximum pressure allowed in the low pressure cylinder, is mounted on the receiver. In this way the steam pressure is regulated so that the amount of work done on each side of the locomotive is approximately the same. As shown in Fig. 16, the reducing valve is wide open and poppet valve *F* is closed;

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the latter being fitted with packing rings and arranged to lift as soon as the receiver pressure tends to rise.

When it is desired to operate the locomotive as a compound, the valve in the cab is opened to steam, which fills the small pipes *D-D;* the resulting position of the reducing and intercepting valves being as shown in Fig. 17. As the steam admitted through the operating valve is at boiler pressure and acts on the large end of the reducing valve piston *C*, it overcomes the combined effect of the spring and the steam pressure at the other end of the valve, which is driven over to the right, closing communication at *H* (Fig. 16) between the live steam pipe and the receiver. In order to reach the reducing-valve piston, poppet valve *G* is raised by the pressure of the steam in pipe *D;* the same pressure closing valve F. In the meantime, steam from the operating valve enters space *W* and drives the intercepting valve to the left, closing auxiliary exhaust port *B* and allowing the exhaust steam from the high pressure cylinder to pass through space *A* to the receiver, as shown by the arrows. As long as it is desired to operate the locomotive as a compound, the operating valve must be kept open, in order that the steam pressure in pipes *D-D* may hold the reducing and intercepting valves in the position shown in Fig. 17.

This type of compound has proved very successful in freight service. When the operating valve is shut, the engine can exert full starting power for any position of the cranks, and the compounding mechanism is automatic and positive in its action. The engine, when operating compound, exhausts only twice for each revolution of the drivers. This fact, however, results in no difficulty in managing the fire, and these locomotives have proved satisfactory steamers.

Before closing it is appropriate to call attention to some facts regarding the proper handling of compounds and their maintenance while in service. The fact that a locomotive has compound cylinders does not assure freedom from trouble if the engine is not properly operated and kept in good condition. The principle of compounding necessitates some change in the operating mechanism, and, therefore, to obtain the best results requires the display of good ordinary common sense on the part of the enginemen. Because an engine is compound is no reason that it should not be fairly treated, and kept in as good order and favored as much as a single expansion engine operating under similar circumstances. The compound locomotive has proved itself satisfactory when handled intelligently and properly maintained, and where these engines have not given good results, prejudice and ignorant handling are usually to blame.

The proper use of the starting valve in a four-cylinder compound is one of the items that contributes most largely to the

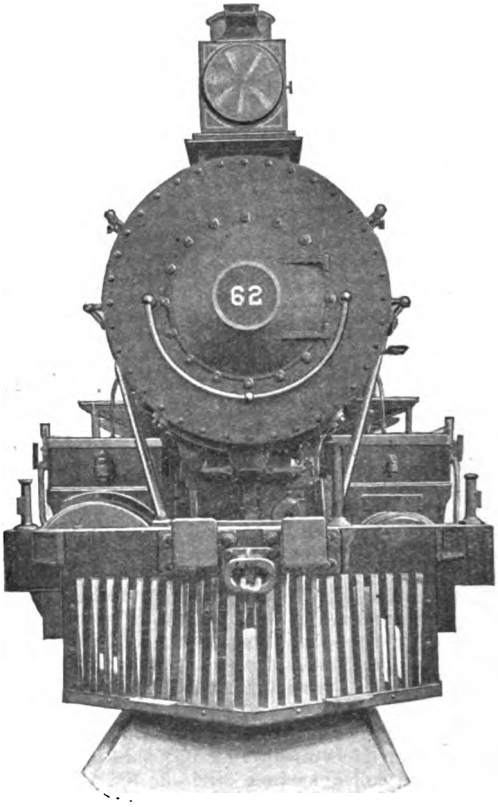


Fig. 14. Baldwin Two-Cylinder Compound Locomotive

success of the compound locomotive. If this valve is left open the engine operates single expansion, and all the advantages of compounding are thereby lost. When the four-cylinder compound is run with the starting valve open, the low pressure cylinders do more work than the high, and the result is excessive wear on the guides, crossheads and all the parts associated with them. This results in a hard riding engine and a rapid deterioration of the running gear, and it is very much to the interests of the enginemen

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that they use the starting valve properly.

It must also be remembered that there is a limit to the weight of the train that can be economically handled by compound locomotives. The fact that the steam pressure on the piston of a compound is more uniform throughout the stroke than in a single expansion engine enables the former to keep a train moving where a single expansion engine would stall; and this, coupled with the ability to keep moving by opening the starting valve, results in a tendency to overload the compound—a practice which brings with it many difficulties. It is also important to keep the piston and valve-rod packing in good condition, and to properly lubricate the cylinders. If the high pressure cylinders are well oiled, the low pressure will be lubricated by the oil which enters with the steam from the high pressure, and which, in a single expansion engine is frequently lost by being blown up the stack. Compound locomotives can not be run without oil any more than can single expansion locomotives. If given fair treatment and a reasonable amount of attention, the compound will prove itself a most efficient locomotive, especially on fairly level roads, where it can be worked at its most economical limit over the entire division.

The Vauclain four-cylinder system has now been applied to steam locomotives in almost all the branches of service, and also to compressed air locomotives for mine haulage. Many of these engines have become well known because of the remarkably successful work done in everyday service, and where the compound has been successfully handled it has seldom failed to win friends.

PAUL T. WARNER.

Tenth Annual Convention of the Air Brake Association

On April 28th the Tenth Annual Convention of the Air Brake Association opened in Colorado Springs, Col. The attendance was good, being in the neighborhood of 125, not counting the ladies, of whom there were many present.

Since the previous meeting in Pittsburg, Pa., Mr. J. E. Goodwin, there elected president, was promoted to Master Mechanic of the N. P. Ry., Duluth, Minn., and by reason of the duties connected with the position was unable to attend. The First Vice-President, Mr. W. P. Huntley, Jr., being absent, Mr. E. G. Desoe, Second Vice-President, presided, and filled the chair with such ability that at the close of the session he was unanimously elected as President for the ensuing year. As presiding officer he was ably assisted by Mr. J. Hume, Jr., Third Vice-President. Mr. Desoe is General Air Brake and Steam Heat Instructor, B. & A. R. R., and Mr. Hume fills the same position on the H. & T. C. Ry. It being understood that Mr. W. P. Huntley, Jr., had retired from railroad work, Mr. Hume was advanced to the position of First Vice-President.

It was feared that Mr. F. M Nellis, of the Westinghouse Air Brake Company, who for so many years has with marked ability and untiring zeal performed the arduous duties of Secretary, would insist in carrying out his expressed determination to resign, but after much personal persuasion on the part of many of those deeply interested in the welfare of the Association he was induced to permit his name to again be put in nomination for this position and, as would naturally be anticipated, was unanimously selected, thus insuring to the organization the benefit of his experience and most favorable location for the performance of the duties of the office.

Without doubt he will select for his assistant Mr. F. W. Gross, of the American Machinist, the genial hustler who has, almost unnoticed, rendered the aid which enabled Mr. Nellis to accept the office when tendered at previous conventions.

In recognition of the ability and self-sacrificing interest displayed in committee work and on the floor of conventions by Mr. Leroy M. Carlton, General Air Brake Instructor, C. & N. W. Ry., and Mr. W. P. Garabrant, General Air Brake and Steam Heat Instructor, P. R. R., and which is not said in disparagement of any of the many others equally entitled to such praise, they were elected respectively to the offices of Second and Third Vice-Presidents.

Good executives should not be lost sight of; at least so decided the conven-

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tion members who during their sojourn in Colorado Springs were continually reminded by the excellence of the arrangements for meeting hall, hotel and entertainment, not to mention the assistance rendered to some members in obtaining transportation to the convention, how well the promises made at the previous convention were redeemed by Mr. W. L. Clendenen, Car Inspector, and Mr. J. W. Hardy, Traveling Engineer, Colorado Midland Railway. Not only were the arrangements fully perfected before the meeting convened, but these gentlemen worked with unfailing patience and good humor, early and late throughout the meeting to see that no visitor was in any way slighted or overlooked. Therefore, they were quite properly elected to the Executive Committee, Mr. Clendenen for the three-year and Mr. Hardy for the one-year term.

Mr. Otto Best, Treasurer, was unable to be present owing, it was understood, to his present responsibilities as Acting Superintendent on the N. C. & St. L. Ry., but this did not prevent his re-election. The older members especially missed greatly the humor of the vigorous remarks so characteristic of this gentleman.

The only voting contest during the elections was over the place where the next convention is to be held. The cities nominated were Buffalo, N. Y., by Mr. C. P. Lovell; Duluth, Minn., by Mr. J. H. Stricklan; St. Louis, Mo., by Mr. Gustav Budig, and Cincinnati, Ohio, by Mr. S. G. Down. Buffalo and Duluth, in particular, through their commercial organizations, extended cordial invitations, their advantages, as well as those of the other cities, being ably set forth by their respective nominees. Buffalo, however, had such a lead on the first vote that on the second it carried by a good majority.

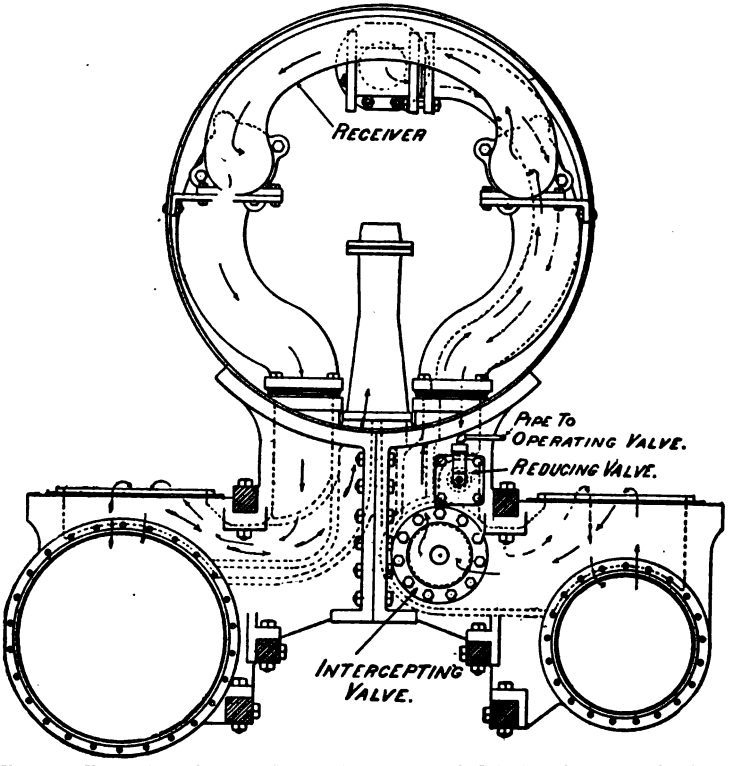


Fig. 15. Front View, Showing General Arrangement of Cylinders, Saddle and Smokebox

In view of the northern location, the date of the next meeting was set back to the second Tuesday in May, 1904.

President Desoe in his address, which he had little time to prepare, called attention to the following, among other matters:

That a more appropriate official desig-

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nation for the party in charge of the air brake department of a railway would be Supervisor of Air Brakes; to the recognition by the Master Car Builders' Association of the value of the work done by the Air Brake Association through the invitation resulting in the joint committee work; urged the need of more yard and cleaners' test plants; that locomotive brake repairs be better systematized; that roads having no need for pressure retaining valves should, nevertheless, keep them in condition to operate properly when their cars were passing over lines with heavy grades; that the air brake defect card be used not only for its original purpose but, as well, to check repair work done; recommended the progressive form of examination; and closed with a cordial welcome to the visiting ladies.

The Secretary's report showed an increase for the year of 86 new members, a total of 700, and a balance in the treasury of $1,382.54, this being a small reduction when compared with 1902, having a balance of $1,470.11.

Owing to delay on the part of committees in forwarding their reports to the Secretary, it was not possible to prepare advance copies. While this undoubtedly reduced the discussion on papers presented, it had its redeeming features in the elimination of unproductive criticism and thereby provided time for some very interesting and instructive discussion on topical subjects submitted.

Water in Train Pipes.

The first subject considered was "Water in Train Pipes," being a continuation of that most valuable one submitted at the previous convention. Mr. F. A. Whitney, Air Brake Instructor, N. Y. & N. H. Ry., Chairman, being absent, Mr. Desoe read the report. The other members were Mr. A. B. Brown, Westinghouse Air Brake Company, and Mr. J. E. Goodman, Master Mechanic, N. P. Ry.

The previous report called attention to the great danger in freezing weather of water in train pipes, the various ways in which it reached them, and gave the results of exhaustive and elaborate tests showing the important parts played in this trouble by the moisture admitted with the air at the pump suction opening; the discharge temperature of the compressed air; how same is effected by pump speed, condition and time under heavy duty; the great value of a sufficient length of pump discharge pipe, properly located, in cooling the air so as to precipitate in the main reservoir the moisture held in suspension; with the effect on such cooling of the main reservoir location and piping.

It was then demonstrated that if the air before leaving the main reservoir was brought down to as low a temperature as it would reach in the train pipe no moisture would be deposited by it in the latter, but the unsolved problem was how to accomplish this. The recent report states that if too much discharge or radiator pipe is used between the pump and main reservoir, stoppage by accumulated frost will occur, and that the proper length to use is a variable quantity, depending largely on local conditions, but that in the New England district 49 feet from pump to the first main reservoir of the two and 27 feet between the two main reservoirs, using 1¼-inch size, had been found quite satisfactory.

The long reservoir of comparatively small diameter was recommended as preferable to the older type, and it was suggested as a probable improvement, where sufficient cooling could not otherwise be obtained, the long type of reservoir provided with a tube through which the atmosphere could circulate and thus afford greater cooling surface.

Attention was called to the detrimental effect of boiler heat transmitted to the main reservoir or piping and the need of guarding against same as far as possible.

The results of a test reported showed that with 37 feet of pump discharge pipe, the pump working against 100 pounds pressure, and with a discharge temperature of 328 degrees the air was cooled to the temperature of the atmosphere, at the time being 18 degrees, thereby assuring against any moisture being precipitated in the train pipe.

In general it was recommended that a comparatively short pipe be used between the pump and first main reservoir and that more piping be employed between the two reservoirs.

An important recommendation was that equal attention be given to the cooling of air and trapping of moisture in yard testing plants so as to guard against these loading train pipes with water.

A quotation made from the report of Professor P. H. Dudley on the "Karner Brake Tests" brings vividly before the mind the enormous force in a modern freight train in motion and emphasizes the need of ample precautions against any fault that would, unknown to the

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engineer and train crew, render any considerable portion of the brakes inoperative. It was that a loaded grain train of 50 cars at a speed of about 35 miles per hour had a greater amount of energy than could be imparted to a projectile by the largest of modern guns.

As a further precaution against moisture in train pipes, it was recommended that the engine and tender pipe be blown out from the rear of the latter just before taking the engine out of the roundhouse.

Mr. Geo. R. Parker, G. N. Ry., spoke of having experienced trouble with water in train pipes and expressed belief in the use of cooling or radiator pipes.

gave 130 single strokes per minute of a 9½-inch pump required to charge 50,000 cubic inches of main reservoir at the rate of 20 pounds per minute.

Mr. S. J. Kidder, Westinghouse Air Brake Company, had previously explained that in his extended experience the greatest trouble with frozen train pipes occurred with a temperature 2 to 5 degrees below freezing rather than in much colder weather. In addition to the confirmation furnished by Mr. Langan, it was endorsed by Mr. F. M. Nellis, Westinghouse Air Brake Company, who gave as a cause of more trouble in the vicinity of New York than of St. Paul, the great-

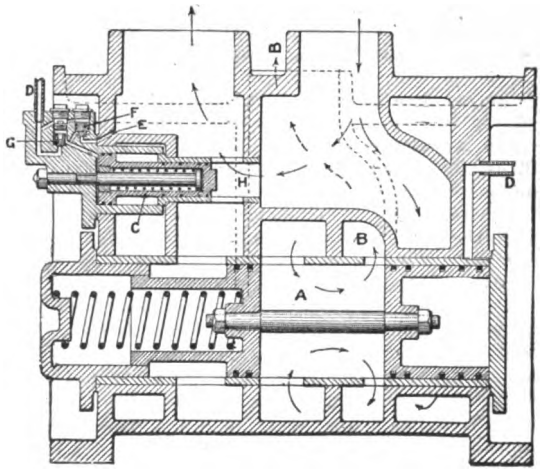


Fig. 16. Sectional View Through the Intercepting and Reducing Valves

Mr. P. J. Langan, P. R. R., reported two cases of frozen train pipe last winter and that these did not occur in very cold weather, but when the temperature was a little below freezing, and that the freezing occurred in the tender hose coupling.

He said also that with several engines with a single main reservoir and 4 feet of discharge pipe, considerable moisture found its way to the train pipe, but that by adding another main reservoir and more discharge pipe the fault was remedied.

He considers that the pump speed is an important factor, says they limit it to 140 single strokes or exhausts per minute, that they have grades 90 feet per mile, that they handle as many as 87 loads or 115 empty cars in a train, and that if the speed given will not supply the train the fact is reported to the Superintendent.

As their test for pump efficiency he

er amount of moisture in the atmosphere about the former.

Mr. Nellis recommended keeping both pump and train pipe in good shape, expressed belief in the longer discharge pipe and the long, slim main reservoirs. He cited a case of train pipe freezing either at the front or back of the tender which was entirely overcome by the use of a 1¼-inch discharge pipe between 20 feet and 25 feet long, and recommends the adoption in his vicinity of a pipe about 25 feet long.

Mr. J. P. Kelly, New York Air Brake Company, expressed preference for the long, narrow reservoir. While recognizing the benefits of a cooling pipe, he had doubts as to ability to obtain a length suitable for all occasions.

Mr. Gustav Budig, B. & M. R., of Nebraska, said that last winter, on the Wyoming Division, they had three cases

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where the train pipe froze up between the engine and tender and that further trouble of this kind was prevented by the use of about 24 feet of 1¼-inch pipe for the pump discharge and employing three main reservoirs.

Mr. S. D. Hutchins, Westinghouse Air Brake Company, stated that on a road having main reservoirs on the tender, freezing of the discharge pipe took place at times in winter until a 12-inch by 96-inch reservoir was connected between the pump and the tender connection, this remedying the trouble.

Mr. Geo. Fredrick, P. W. & B. Ry., called attention to the importance of connecting the main reservoirs properly where two or more are used, the essential being to force the air to flow throughout the length of each between entering the first and passing out of the last to the brake valve. He related observations where with two main reservoirs connected as indicated almost all the water was collected in the first, but where coupled so the air did not have to flow throughout the length of both, little was found in the first, more in the second and some passed on to the train pipe.

Another member called attention to the need of, so far as possible, preventing steam and condensation from entering at the pump suction as the drier the air drawn in the less moisture would have to be condensed, reducing the liability of freezing up pipes and of water taking the place needed by air in the main reservoir.

Mr. H. W. Cuthbert, C. N. Ry., expressed a preference for the increased length of cooling pipe between the two main reservoirs rather than in the pump discharge, relating an experience where freezing of tender and other brakes was cured by 12 feet of pipe between the two reservoirs.

Mr. J. P. Kelly, New York Air Brake Company, spoke of the importance of locating main reservoir drain cocks conveniently for use so as to encourage frequent drainage.

Mr. Jno. R. Alexander, P. R. R., endorsed this, citing an experience where much trouble was met with when plugs had to be removed to drain main reservoirs and which passed away after the introduction of drain cocks.

He said they had adopted a discharge pipe 21 feet long and the same length for the pipe connecting the two main reservoirs.

Mr. S. G. Down, Westinghouse Air Brake Company, said the Missouri Pacific Railway use a main reservoir of 31,000 cubic inches, located on the tender, requiring 35 feet of pipe to the pump; that they had no frozen train pipes, but did experience some trouble with the discharge pipe freezing up.

The importance of a good condition and moderate speed of air pump so as to keep down the discharge temperature and thus promote more thorough precipitation of moisture was endorsed by many speakers, all seeming to favor a speed limit.

Mr. Leroy M. Carlton, C. & N. W. Ry., said they introduced a choke in the pump steam pipe of locomotives carrying a high boiler pressure to better guard against excessive speed, advised a limit of 130 to 140 strokes per minute, and that they handled 52 to 55 cars down a 1½ per cent. grade with no retainers, and held up pressure with 80 to 90 strokes per minute.

Mr. J. W. Hardy, C. M. Ry., expressed belief in moderate pump speed, but did not favor for mountain grades an arbitrary limit as imposed by a choke, safety demanding ample air pressure even if at times this required a faster pump speed than was generally desirable.

Mr. C. S. Larrison, N. P. Ry., recommended two 9½-inch pumps per engine where long and heavy trains are handled down steep grades, advising this was their practice and that the results had been most satisfactory.

Mr. C. B. Conger, International Correspondence Schools, said that the heat generated by high pump speed not only prevented precipitations of moisture, but tended to pick up that already collected in the main reservoir.

Mr. A. B. Brown, Westinghouse Air Brake Company, stated that on some engines the C. P. Ry. used two square main reservoirs of 25,000 cubic inches each, provided with automatic drain cups, and that no trouble with frozen train pipes was experienced through these. He expressed belief in thoroughly blowing out the engine train pipe before coupling to train.

The High Speed Brake.

The subject of the second paper was "The High Speed Brake," it being read by Mr. Leroy M. Carlton. The other members of the committee were Jno. Roney, Chairman, W. H. Foster, W. P. Garabrant and S. L. Mider.

They stated that with the high pressure the brakes on some trains occasionally applied quick action with a service reduction, but that this had been entirely

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overcome by the use of the 12-inch by 14½-inch brake valve equalizing reservoir, now the standard of the Westinghouse Air Brake Company, for all service, and state its capacity at about 800 cubic inches, or 160 cubic inches more than the previous standard. They called attention to the need of seeing that triples had the proper graduating springs, and that these be kept in good order, as another means of guarding against undesired quick action.

They report no trouble from wheel slid-

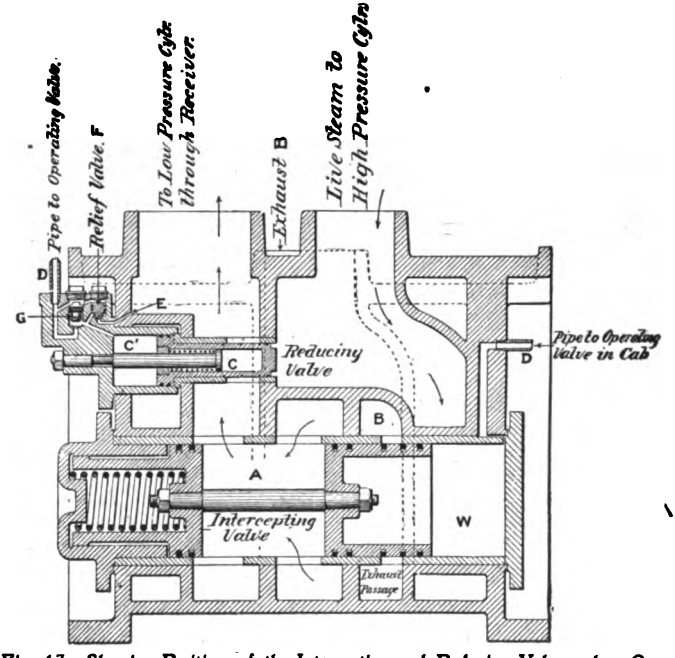


Fig. 17. Showing Positions of the Intercepting and Reducing Valves when Operated as a Compound

ing, and the discussion developed that very little had been experienced, much less than in ordinary service.

It was stated, though, that the 10 pounds excess pressure originally recommended, the difference between 110 pounds train pipe and 120 pounds main reservoir pressure, was not now adequate with all trains and that more should be carried. The discussion brought out that there could be no standard main reservoir pressure, that it must be made to suit the length of train and main reservoir capacity and that the amount first used was when the trains consisted of three or four cars.

It was recommended that all wheels of locomotives be braked, that the high speed feed valves be stenciled 110 pounds so as to more easily determine which of the two on each engine is set for the high speed pressure, and it was stated that recording gauge charts showed that after two or three successive service applications there was left an ample reserve for an emergency.

Mr. J. W. Libbey, L. S. & M. S. Ry., said they have adopted 125 pounds main reservoir pressure and paint both the high speed feed valve and ¼-inch cut-out cock red. Also, that they had increased the width of their tender cylinder levers from 4 inches to 6 inches.

Mr. G. Budig, B. & M. R., said they paint all high speed parts red; believes in more than 120 pounds main reservoir pressure, as they handled at times twelve to fourteen cars; that they had tried hard and soft shoes, found the latter the best, and that some would last for 1,800 to 2,000 miles. Also, that on the start they had to remove some weak graduating springs to stop undesired quick action; and that feed valves under the running board gave trouble by freezing, but that this was overcome by moving them into the cab.

Mr. W. P. Garabrant, P. R. R., thought very little undesired quick action

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was caused by weak graduating springs, but rather by dirty triples and train pipe leakage. He said they did not have to strengthen their brake rigging or change brake cylinders and used 2½-inch "National Hollow" and "Diamond Special" brake beams. Neither had they trouble in maintaining correct piston travel on Pullman cars, as complained of by another member. He advised that the crews of local trains liked the high speed brake very much. In answer to a question by Mr. C. B. Conger, he advised that with the same care given, the hose appeared to last as well with 110 as with 70 pounds pressure.

Mr. P. J. Langan, D., L. & W. Ry., said that owing to high total leverage they had to change some brake cylinders in applying the high speed brake and that some Pullman cars with 14-inch cylinders can not be kept below 8 to 10-inch piston travel.

Mr. F. W. Nellis, Westinghouse Air Brake Company, called attention to the matter of too high total leverage being equally important with 70 pounds train pipe pressure, and that where it existed larger cylinders should be used even without the high speed brake. He stated there is no need of strengthening the brake gear if of the standard weight. He called attention to the essential principle of the high speed brake being to apply a very heavy shoe pressure at the time when high speed gave poor friction and to reduce this as the speed fell and shoe friction improved.

Mr. G. B. Culver, N. Y. C. & H. R. R. R., had experienced no trouble from undesired quick action, believes in excess to suit length of train, says no flat wheels on Empire State Express, a four-car train, but had some flat wheels with Twentieth Century Limited, a train of four to six cars, which he attributed to inadequate excess. He reported finding corks left in the check nuts of automatic reducing valves applied by other roads, the effect being to decrease the brake efficiency in emergencies.

Mr. Geo. Fredrick, P. W. & B. Ry., said that with the high speed brake in service on two trains for five years, they had only one or two cases of flat wheels and attributed some of this to the equalization of work throughout the train by the action of the reducing valves.

Mr. Leroy M. Carlton, C. & N. W. Ry., advised there was no trouble in getting a quick rise at the rear of a ten-car train if enough excess and full release was used long enough; that from 70 to 110 pounds would not increase piston travel over 1 inch; that they had some trouble with shoes breaking, but it was found due to wrong radius, causing them to strike at the points. Answering a question by Mr. Desoe as to why engineers often claim a 10-pound reduction from 110 pounds train pipe held better than the same reduction from 70 pounds, he agreed that it did not, but thought the more rapid reduction from high pressure resulted in their drawing off more than they thought and that this was increased faster by the following train pipe leakage.

Mr. J. P. Kelly, New York Air Brake Company, believes in high pressure and equal distribution of braking power, but thinks there is a limit to the former; that rigging is getting too heavy and to move it causes a loss in braking power; suggests limits of pressure because of brake shoes heating excessively, anticipating a material loss in friction thereby; does not believe in a fixed train pipe pressure, and thinks the coming year will develop much new and interesting information in high speed braking. He stated that with 90 per cent. braking power stops had been made from 60 miles per hour in about 1,100 feet.

In conclusion, Mr. R. H. Blackall, Westinghouse Air Brake Company, moved that data on important brake shoe tests, prepared by Mr. F. W. Sargent, be incorporated in the proceedings. The motion carried, and he was appointed a committee to arrange for it.

Pump Tests.

A valuable topical discussion on tests of the pump air cylinder took place on the second day. Some of the points brought out in this and the discussion of the first paper are as follows:

First, that the condition of the pump air cylinder is not ascertained in service as frequently as it should be and the often indicated repairs are not promptly made. Second, comparatively few roads have a standard efficiency test up to which all pumps passing the repair room must come. Third, such tests as are made differ in character materially. Fourth, the desirable test for the repair room is not such as the engineer can be expected to make.

Mr. P. J. Langan says that they require 9½-inch pumps to be in such condition as with 120 strokes per minute and a main reservoir capacity of 50,000 cubic inches the pressure will be raised from zero to 100 pounds in 5 minutes, or at

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a rate of 20 pounds per minute. He said engineers should be instructed as to the main reservoir capacity of engines. This, naturally, is a test of both pump efficiency and leakage on engine.

Mr. E. G. Desoe, B. & A. R. R., advised as better, in his opinion, requiring that the pump be able to maintain a certain pressure with a given leakage-opening without exceeding a fixed number of strokes per minute. This, too, on the locomotive, comprehends other leakage as well as pump efficiency.

Mr. J. W. Libbey, L. S. & M. S. Ry., said their test is on similar lines as mentioned by Mr. Desoe, and that it is made only when the question is raised by trainmen as to whether a certain engine can deliver to the train as much air as should reasonably be expected. He said a 9½-inch pump should easily supply leakage through a 3-16-inch hole, made at rear of tender, and maintain 70 pounds train pipe and 90 pounds to 100 pounds main reservoir pressure.

Mr. Leroy M. Carlton, C. & N. W. Ry., endorses the leakage test at rear of tender, but prefers the opening should be small and speed slow.

Referring to the speed possible with a boiler pressure of 200 pounds and full pump throttle, he said they could get 205 single strokes per minute with the 9½-inch pump; air pressure not given.

Mr. Geo. R. Parker, G. N. Ry., described two methods of testing; one being to use a 5-32-inch leakage opening and 60 pounds pressure, noting the pump strokes per minute required to maintain the latter. He said that under certain atmospheric conditions if the leakage was made at the rear of the tender, frost would accumulate and interfere with the test. Therefore, recommended the leakage be made in the cab.

The other test is intended more for the repair room and appeared to be new to almost all present. It consists of connecting an air gauge to the lower end of the pump air cylinder and, with a speed of about 20 single strokes or exhausts per minute and 90 pounds main reservoir pressure, noting the amount of pressure shown in the lower end of the cylinder at the *completion* of the *up* stroke. He said a cylinder in good order will show 7 to 8 pounds, and that where the pressure exceeds 12 to 15 pounds and repairs are otherwise good the cylinder should be bored.

Mr. A. Folsom, C. & N. W. Ry., said he used this test, endorsed it, and that new 9½-inch pumps as received from the Westinghouse Air Brake Company would show 7 to 8 pounds pressure.

On an inquiry from a member as to how much back leakage from the main reservoir affected this test, Mr. Parker stated that any such was located and remedied as soon as the valves and cages were fitted and before the air piston was put in place, shop pressure being applied at the discharge opening and leakage noted at the ports. It was explained, also, that any which might possibly develop while the gauge test was being made would be indicated with the pump stopped, by the steady rise in pressure with the oil cup closed, or discharge at latter with it open. Mr. Parker said that with the gauge test given and a good pump, pressure began to show on the gauge when the up stroke was about three-fourths completed. Answering another inquiry, he said the gauge test showed an improved condition after the pump had been run for two days.

Another member gave the oil cup test, used with good results on pumps in service. It consists of attaining 90 to 100 pounds in the main reservoir, opening the oil cup and adjusting the pump speed to 30 strokes or exhausts per minute; then noting whether there was any discharge at the oil cup during the *down* stroke and, if so, over about what proportion of the stroke. He stated that a pump in fairly good condition should show no discharge, explaining that this did not mean absence of leakage as, to cause a blow, more than enough must pass the packing rings or leak back from the main reservoir to fill to *above* atmospheric pressure the space created as the piston descended. Also, that a blow for about one-fourth of the down stroke indicated a condition warranting immediate repairs. Leakage back from the main reservoir was to be determined by stopping the pump and noting if any blow continued at the oil cup. Attention was called to the importance of speed and pressure given for this test in order to make it reliable.

Combined Automatic and Straight Air Brake.

The last paper presented was on "The Combined Automatic and Straight Air Brake" for engine and tender, being submitted by the writer of this article. The uses given for it were as follows:

1. To quicken switching and reduce the incident damage to lading and equipment.

2. To permit of brake release on long trains without danger of slack running

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out and train separation, particularly at low speeds.

3. To prevent the slack of long trains from running in or out so suddenly, by reason of change of grades (sags or humps) or curvature, as to cause serious shocks and breaking in two.

4. To slow down or stop long or short trains where the brake work required is not heavy, thus reducing pump labor, stuck brakes, wheel sliding and the break-in-twos incident to starting long trains with brake shoes dragging (sometimes brakes stuck) on cars toward the rear—a not uncommon result with the automatic brake held on until stop is made.

5. To prevent the slack from running out and aid the car brake retainers in controlling the speed while recharging on descending grades.

6. To hold the train and engine and keep the automatic brakes recharged when standing on grades, thus having the train brakes ready for immediate use at start.

7. To increase the safety when work requires some one to go under the engine; the application position of the straight air brake valve rendering it impossible for the driver and tender brakes to leak off; this also prevents the possibility of an engine getting away when no one is present, even though the throttle leaks.

8. To control speed while weighing cars.

9. To increase mileage between tire turnings.

10. To decrease repairs to the automatic brake valve by reducing the use of its "emergency" position and, to a lesser extent, of "service."

The foregoing are well-demonstrated advantages which are realized, in a measure (more particularly on road engines), in proportion to the extent to which this apparatus is employed, since engineers must have the opportunity of frequent use to become thoroughly familiar with any device—a requisite not only for developing its possibilities for good, but to avoid its abuse.

Its use requires additional parts, but, with the following exception, these reduce rather than increase the labor and expense of engine brake maintenance.

More frequent adjustment of driver and tender brake piston travel is necessary than with automatic alone, due to the increased labor these brakes perform. To offset this there is, in addition to the advantages already mentioned, less reversing, with the consequent betterment to valves and cylinders.

The double check valve and straight-air brake valve are the only additions to standard brake parts. Long service has demonstrated that these seldom require repairs; when they do, it means only the replacement of small leather seats.

While the apparatus can, to a limited extent, be abused in use, as is true of any device of value, yet no other manipulated by the engineer requires that he be given so little instruction or that he exercise so little skill and judgment to obtain satisfactory results.

Mr. J. H. Stricklan, D. M. & N. Ry., said that in a test a train of 50 loads was held by it and the retaining valves for 25 minutes on a 2 per cent. grade, showing its great value in enabling a standing train to be kept recharged, ready to start on signal and prepared for immediate use of full braking power if needed; that in spotting cars for steam shovel work they stopped with the car brakes and held with straight air so as to be recharged for the next stop; that all of their locomotives were fitted with it, they being the pioneers in its use on road engines; that, as showing its value in other ways, five freight engines with 120,000 miles each to their credit, entered the present ore season without tire turning, and that in spite of heavier trains last season than the one before, the break-in-twos had been 10 per cent. less, which was attributed to the use of the straight air.

He called attention to the need of carrying excess pressure to prevent the use of straight air causing the driver and tender brakes to stick; to the desirability of having tenders fitted with automatic slack adjusters to better care for the increase in piston travel resulting from more shoe wear than with automatic alone; said there was no excuse for flattening drivers, as if they commenced to slide the brake could be instantly released and, if needed, at once reapplied. He warned users against leaving the straight air brake valve on lap or allowing it to get in such a condition as to work out of the release position when running, advising they had had two cases of loosened tires from failures in this regard. He stated that the cost for maintenance had been practically nothing, comprehending only occasional cleaning of the reducing valve and replacement of a few leather seats, and that its use reduced the cost of maintaining the automatic brake valve.

Mr. C. S. Larrison, N. P. Ry., stated that they had a large number of heavy

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switchers fitted with the device and that it gave very satisfactory results; also, that some time ago they applied a trial set to a heavy freight locomotive and the engineer was so pleased with it that he offered to buy it rather than have it removed.

Mr. J. P. Kelly, New York Air Brake Company, endorsed what had been said of its advantages, describing the opposition he awakened among engineers of the "Frisco" line when he recommended replacing the steam brakes with automatic on road engines, and their satisfaction later with engines fitted with the combined apparatus.

Mr. J. W. Libbey, L. S. & M. S. Ry., said they reduced the straight air pressure to 35 pounds. A member called attention to the possibility of making this adjustment at any amount below 50 pounds and yet not impair train safety, as the automatic remained as it was.

Mr. S. D. Hutchins, Westinghouse Air Brake Company, described a test on a 217-foot grade where two engines and 26 cars of coal (24 air brakes) were held standing by the retainers and straight air, this being on the L. & N. Ry. He said that formerly it was necessary to use the water brake to aid in holding trains down this grade.

Mr. S. W. Johnson, N. C. & St. L. Ry., said that since the introduction of the straight air on the engine used on this grade, the damage in operation of trains had been materially reduced.

The author of the paper called attention to the desirability of reducing the possible speed of brake application with heavier locomotives on account of their greater retarding power, and how the larger brake cylinders required with such, and the fixed size of port in the reducing valve, accomplished this without any special provision.

Mr. F. M. Nellis, Westinghouse Air Brake Company, stated that on a coal road operating long trains a trial set effected such a reduction in flat wheels that all heavy locomotives were to be equipped.

Mr. E. G. Desoe, B. & A. R. R., described the advantages they had obtained with straight air acting only on the drivers.

Brake Beams.

In a topical discussion on the desirable length of brake beams, Mr. T. A. Hedendahl, Westinghouse Air Brake Company, expressed the opinion that the Master Car Builders' standard of 60½ inches between brake shoe centers caused the trouble it was intended to prevent, viz., shoes bearing heavily against the flanges, and that 60-inch centers would effect a very decided improvement by preventing shoes from overlapping the wheels. His opinion was endorsed by others, the statement being made that several roads had already adopted the 60-inch length. A committee was appointed to investigate this subject and relative features and report at the next convention, Messrs. Hedendahl and W. C. Jones being named.

Master Car Builders' and Air Brake Associations' Joint Committee.

Mr. F. M. Nellis reported on the work done by the joint committee of the Master Car Builders and Air Brake Associations at the last convention of the former, where they considered rules relative to freight brake maintenance in interchange traffic. He said the only item left unchanged which the Air Brake Association members seriously objected to was that which did not condemn a triple piston ring until it had worn open 1-32 inch, but that the consideration shown the members from our Association and other valid reasons warranted leaving this item as submitted and that a betterment would certainly be effected at no distant date. He moved that the joint report be incorporated in our proceedings; and the motion carried.

Entertainment.

The entertainment provided by the Committee of Arrangements was as extensive as possible without interfering with the work of the meeting, was thoroughly enjoyable and the majority of it was instructive to a high degree.

In the afternoon of the first day two special trains took, at half rate, all who desired to go to the summit of Pike's Peak and return. Several were affected by the light air, being used to air in a more compressed form, but soon recovered when the descent commenced.

The cog railway, 25 per cent. grade, curiously constructed locomotives, safety brakes and powerful water brakes of the special Baldwin type, coupled with the magnificent views, until a snow storm was entered, proved sources of unending interest and surprise. Several without overcoats braved the cold during stops, of which there were several to take water, for the pleasure of snow-balling. Several cuts near the summit were yet banked with snow so it could be reached from the car windows.

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For those who did not care for the trip up the Peak there was a street car ride to Manitou, permitting of their sampling the several mineral springs.

On the afternoon of the second day was provided a special train to the summit of the 4 per cent. grade on the Colorado Springs and Cripple Creek District Railway. Descending the grade on return, the water brake was used. The even speed and good brake work done by the engineer was generally noted and was commented on most favorably.

By special arrangement a D. & R. G. Ry. car with a beamless brake rigging was included in this train and proved of considerable interest.

On the forenoon of this day the ladies were given a free street car ride to Cheyenne Canyon and return, and in the evening there was a ball. Owing to the many ladies present, the ball proved a very enjoyable affair.

Thursday forenoon there was provided a carriage ride for the ladies, taking them to Williams Canyon, Garden of the Gods, Cave of the Winds, etc. In the afternoon a special train took the members to the summit of the divide on the Colorado Midland Railway and return to Colorado Springs, the grade ranging from 3 to 4 per cent. A Crosby recording gauge connected to the brake cylinder of one car was carefully watched on the descent by as many as could get sight of it. Here, too, the fine braking and uniform speed called forth many complimentary remarks, particularly as the water brake was not used. An interesting feature shown by the gauge was that the frequent recharge, as practiced by the engineers on both trips mentioned, maintained at all times a good reserve braking power and also increased the value of the retaining valves, the brakes being recharged and reapplied before the cylinder pressure fell below an average of 20 pounds.

Although the speed of descent was very moderate, yet the heavy brake work performed was clearly indicated by the high temperature of the shoes and wheels, particularly on the "Short Line" grade.

For those who desired to see more of the mountain scenery and braking, passes were furnished reading over the C. M. Ry. to Cripple Creek and returning over the C. S. & C. C. Dist. Ry. Another educational feature on this order was the provision by which all members desiring could observe the work of bringing a heavy coal train down the 4 per cent. grade of the Jerome Park Branch, 16 miles long, near Glennwood, 214 miles west of Colorado Springs, and for which round trip passes were furnished.

The writer was unable to be present, but obtained from Mr. Geo. R. Parker, G. N. Ry., the following about this very interesting and instructive trip:

Two recording gauges were used, one connected to the train pipe at the rear end and the other to the caboose brake cylinder. A simple gauge was attached to the caboose auxiliary reservoir. But one air brake of the 25 was inoperative and the hand was applied on that car.

Omitting a stop of 2 minutes, the actual time consumed in the 16 miles was 57 minutes, making an average speed of about 16¾ miles per hour. The speed was quite uniformly maintained and, following the first application, the train pipe pressure was uniformly restored to 90 pounds. Uniform speed and thorough recharging are features possible only with frequent recharging, which obtained, as 30 brake applications were made in the 16 miles. Main reservoir capacity was 44,000 cubic inches, pressure 120 pounds and train pipe 80 pounds in running piston. The 90 pounds recharged to was obtained in full release. Running piston can not be used under such circumstances. The average reduction was 10 2-10 pounds.

The engine had a vacuum brake which was used occasionally to aid in holding while recharging.

It is understood that the cars are leveraged to brake at about 90 per cent. or a little more, of their empty weight, based on the resultant of 70 pounds train pipe pressure.

This trip was made in the forenoon and in the afternoon the party, ladies included, had the pleasure of bathing in the large swimming pool, 100 feet wide by 600 feet long. While the ladies may not be "up on air" they were, on this occasion, down on water, but in a different sense than reputed to have been the case of the Kentuckian who, after some months spent in California, was asked by a neighbor after his return, if they had good drinking water there. After a moment's reflection he exclaimed, "Well, sah, to tell the truth I can't say, for I forgot to try it." The ladies gained their distinction by going down the slide, some even making two or more trips, all brakes released.

In conclusion it can be said as a distinctive feature of this convention that at no other has there been so much valuable information obtained outside of the convention hall. F. B. FARMER.

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About Grogan and Swanson's Air Brake Trouble.

"Say—there goes Whit, the foreman of car inspectors, over to the air car; let's go over and hear the argument—Whit's pretty well posted." So we all drilled over from the boarding house and got in on the opening exercises.

Whit was wanting to know what was the reason that so many of the freight car release valves leaked. They are generally at the top side of the auxiliary reservoir where dirt, water or oil can not very easily get into them, yet he said that it kept his men busy removing leaky valves and taking them to the repair bench.

"The repair man could have told you," said the instructor, "that when a release valve is new there is scarcely any clearance between the end of the valve stem and that part of the handle that must push it open, so, as the rubber seats wear away the valve must sink further in to reach a bearing, and being prevented by the handle from going any further it causes a leakage there. The repair man could put in a new rubber seat and stop the leak, but in a short time the rubber would wear away and again leak, so if the rubber is good he just gives the valve a little more clearance—files the end of the stem just enough to close the leak—one case where it's a benefit to alter standards."

"Another thing," said Whit. "I have got a lot of extension hose—coupling on both ends—and I have to see that a pair of brake and signal extension hose are in every passenger train-box. Now I want to know what is the reason there is an order not to furnish brake extension hose to freight crews?"

"I don't approve of them at all," replied the instructor, "but if a drawbar breaks in a pasesnger train it is not desirable to set the defective car on the rear and so change the regular make-up of the train; in such a case the cars are chained together and the extension hose must be used to fill the distance created by the chain. With a freight train there is no reason why the car should not be set at the rear, and plenty of reason why it should."

"Well, you know Tim Grogan—freight conductor and extra passenger? He's been a chewin' around the shanty, here, for one of them hose an' I finally give him one not long ago; he reasoned out that it would be a saving to the company."

Both of Grogan's brakemen were present and they were plainly excited.

"Mister Man," said White Line George, "that there hose made more trouble for the whole bunch connected therewith than—an' it were responsible for the rockiest trip since I've been brakin' along on this dusty ravine.

"We stopped, comin' south, at Lakeside for orders, and pulling out from there Swan Swanson—which of course he's just set up—been firin' a light passenger engine—when he grabbed that Hog out come a lung behind the fifth keer back, which it was right in front of the station.

"Grogan said chain her up an' go, an' he puts in that there extension hose to bridge the cassum, as it were.

"Now, they's a whole bunch of people on the station platform waitin' for their train, an' Grogan he's paradin' himself a whole lot, an' when we're ready to go, again, he gives one o' them ajax signs toward the engine, which Swan can't see it—a truck load of baggage a intervenin', as it were, an' getting dark, too; so Timothy leaps up onto a barrel, which the local it had just left it there, an' getting' the Marconi elevation he throws the grand startin' sign with both hands, an' a cute little jump-up—

"An' down goes Grogan through the head of the barrel waist deep in sorghum molasses; an' him not a waitin' to be rescued he gets wild an' oversets the barrel an' mixes up with the rest of the sorghum on the platform. Then he stampedes through a bunch of women a leavin' a sweet token on each of 'em.

"Swan had 'em goin' by this time an' Tim an' his sorghum gets on the caboose an-nointin' everything aboard till I get him changed into a suit of Dooley's overalls.

"It's plumb dark when we turn over Summit, and as the hind end bunches ahead the air goes on at emergency; when the slack run in, the keers 'at were chained closed together an' the hose connectin' 'em were so long on account of the splicin' hose what Grogan had put in, that it must have struck the cross-over rail at the south switch an' knocked off the extension, or splicin' hose.

"Well, she breaks in-two at the same old place again—chain give way—"

"Say, George," interrupted conductor Dean, "how do you know she didn't break in-two first, and *that* pulled the hose off?"

"Why I felt the slack run in first; that wouldn't break the chain. Then the brakes went on."

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"George is right," said the instructor, "and that is one of the reasons why extension hose should not be used. When it was decided to discontinue the use of dummy hose couplings on freight cars and the hose permitted to hang down when uncoupled it was found that the couplings would strike switch rails and crossing planks—the hose were twenty-four inches long. So they shortened the hose to twenty-two inches, but you can see that now they don't clear crossing planks very much; and with the hose line lengthened by means of the extension, it is bound to strike when the cars close up."

"I line out for the head end and Swan an' his five keers are plumb gone out a sight, an' way down the hill I see the flash of the fire-door openin', the same indicatin', as it were, that Swan's a pursuin' his home'ard way.

"Well, Grogan walks back to Summit station to flag and report to the dispatcher, which he advises Grogan half an hour later that the engine has arrived at Lansing yards, set out her five cars and about to return after the rest of the drag; number 'leven an' a extra south is lined up behind us an' when Swan gets back we have to back in and let the passenger train pass us, and that kills us for everything—all night lay out. What? I don't know, pardner, how he got away with his air stuck."

"I do," said the instructor, "and I am afraid Swanson can never be made to understand that you must not try to get away when you break in-two among the air. Two of the five cars that were with the engine when he broke away were piped cars, but he didn't know it at the time. When the brakes went on at emergency the long arm of his driver-brake cylinder lever on the right side broke—he didn't know that, either; but he got rattled and pulled out, and finding he was picking up speed, down the hill he went, *afraid the hind end would catch him*, until he reached the Lansing yards. The three braked cars were loaded and the wheels did not slide and must have leaked off after while; when the cylinder lever broke, the driver brake was released on that side and the piston having, then, its free stroke, it gave much more room for the pressure to expand into and so weakened the brake on the drivers on the other side of the engine. It was the peculiar combination of circumstances that permitted him to get away. If he tries it again—and I believe he will—he will get stuck good and hard.

"The Old Man brought Swan over to the office of the air car and asked me what should be done first, coming down Summit when the air is felt to go on at emergency. 'Shut off, if using steam,' I replied. 'Then what?' he asked. 'Throw brake valve on lap and get sand running,' said I.

"Then the old gentleman turned loose on Swan. He asked him if there were found to be any flat wheels under any of those cars or the tender if he didn't think he ought to pay for them.

"'Yah, bat Maister, aye gat away al rate,' was Swan's reply to everything the Old Man could say to him, so the Supt. M. P. finally let him go with the warning not to try it again; and I want to give all the same warning. If the section of the train to which the engine is attached—ahead of the break—is braking heavier than the rear section, the hind section is bound to catch you and you will only make the hit harder by getting further apart; or, if the rear section is braking the strongest they can not strike you, so there is still no use to use steam. Do the safest thing; don't take chances."

WILL W. WOOD.

The Locomotive.

To the beginner in locomotive service the "engine" is rather a mysterious machine, and while study and association will divest it of its mystery, it always remains something more than a mere machine. The ordinary definition for a locomotive is as follows: A horizontal boiler with two high pressure engines attached to a frame, the whole mounted on wheels designed to run on two parallel rails.

The boiler contains the firebox at its rear portion, and in the barrel are the flues and dry-pipe. At the front of the boiler proper is the smokebox containing the draft appliances and the steam pipes, and on the boiler head are the attachments for operating the locomotive, yet in answering the question, "What is a locomotive?" they are not considered, the shorter definition being held sufficient.

The two engines of a locomotive, while independent, are dependent on each other, and are so connected and placed as to work in an auxiliary capacity under the ordinary conditions of locomotive service. When the piston on the right side is nearing the dead point at either end of the stroke, where it stops for the smallest possible space of time before the pressure on the opposite side of the piston head

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commences to work in the opposite direction, the engine on the other side of the locomotive is working under the full pressure being used at that time and assists materially in carrying the other engine past the dead points, without any appreciable loss of power or momentum to the train being hauled. This relation is reciprocal between the two engines.

Where an engine is disabled, only the manner in which it is disabled and other surrounding conditions can determine how much, or if any, train can be handled successfully. With some classes of locomotives, where the damage is such as to reduce the adhesion to a minimum, it will be found difficult and often impossible to run the light locomotive.

The engines attached to a locomotive are so arranged as to transmit their power to the wheels designated as driving wheels, and on which the greater portion of the weight of the locomotive rests, to give them a rotary motion and propel the locomotive and its load in the desired direction, provided the wheels do not slip on the rails. The slipping, or spinning around, of the wheels, without any advancement of the locomotive or its load, except from previous momentum, is injurious to the locomotive, from the fact that the pistons and rods, together with the machinery dependent with them on the regular and even motion of the wheels when revolving, are turned loose at an unusually rapid rate to reverse their motion or direction without any aid from the steam as it is designed there should be, thus bringing a great strain on different parts of the machinery through the reversal of motion and direction being accomplished safely through the strength of the material to resist such strains, which, however, have their weakening effect.

Where an engine is starting a train and is allowed to slip unchecked for a little time, a flat spot will be found worn on the top of the rail. At a high rate of speed the danger of damage to the machinery from an engine slipping is much lessened, as the speed at which the wheels are revolving before beginning to slip is much nearer that at which they revolve when slipping than is the case when moving slowly. In either case the steam supply should be shut off before sand is dropped on the rail. If sand is dropped on the rail without closing the throttle, the strain thrown on the machinery is very severe and is liable to result in disaster to it, particularly when the speed is low.

The power of a locomotive to do work is dependent, first, on the amount of energy its engines can exert to produce motion; second, on its adhesive or tractive power. Adhesion, or, as it is often called, traction, is the property which the wheels have of clinging to the rails, and is dependent on the amount of weight on the driving wheels. The adhesive power of a locomotive is the amount of power that can be applied to the wheels up to the point where no more pressure can be applied without their slipping. While adhesion is always dependent on the weight resting on the drivers, yet the amount of adhesion a locomotive has may be changed by the condition of the rail and the application of sand. On a dry rail the adhesion may be increased by the use of sand, if used judiciously, and on a wet or frosty rail, with the use of sand, the adhesion will be about the same as on a dry rail without using sand. Sand should be used moderately. Where the sand valves are opened and two large streams of sand are allowed to fall on the rail, and are bedded there by the drivers, the friction will be increased to such a degree as to "stall" a train which on a dry, unsanded rail, or even a moderately sanded rail, could have been hauled over the top of the hill. If the sand valves are only opened a little space, allowing thin streams of sand to fall on the rail, and the sand lever is then left stationary, the probabilities are that the small openings of the valves will soon clog up and, the flow of sand being stopped, the engine would slip. The frequent opening and closing of the sand valves a little way on a hard pull will give the best result, in preventing slipping and not increasing the train resistance by an unnecessary amount of sand on the rails.

With sand blowers the streams of sand are small and as the sand blowers are very liable to get out of repair, particularly where the sand used is coarse, ordinarily engines are equipped with both sand blowers and levers.

Another bad result of the use of too much sand is, the supply in the sand box is liable to become exhausted at a critical time when it is needed badly.

The use of sand out of one pipe and on one rail should be avoided, as the strain of the power from both engines is thrown on that side and is liable to result in damage to journals, pins, wheel hubs, etc.

In addition to a wet or "greasy," or frosty rail causing a locomotive to slip, a very hard tire would also cause a locomotive to slip. Too much cylinder

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power for the tractive power will have the same effect. These latter conditions are not intended and seldom now exist. The degree of hardness of the tire, which will not slip too easily and yet be hard enough to wear well and not pound flat, has been pretty well determined, the same as the adhesive weight, and has been made great enough to allow for a considerable increase in the size of the cylinders by wear and boring out before being bushed down to their normal size, and the locomotive still not be slippery to an unusual degree. The adhesive power of some late locomotives has been as high as 88 per cent. of the total weight of the machine, but this is in the neighborhood of 15 per cent. above the average, as ordinarily 75 per cent. of the total weight of the locomotive may be considered as the adhesive weight.

It is not possible to put all the weight of a locomotive on the driving wheels for the reason that it would increase the rigid wheel-base, and the locomotive would not "curve" readily and would leave the track on a curve when going at a high rate of speed, where the small and easily turning truck wheel would follow the line of the track and guide the locomotive safely along.

When one considers how small the point of contact is between the tire and the rail it is easy to comprehend how a little dampness on the rail or tire will cause a locomotive to slip. The tractive power, or pull, which is always less than the adhesive power of a locomotive, depends on the length of stroke and the area of piston, average mean effective pressure and diameter of driving wheels. If it is desired to determine how much tractive power a locomotive exerts through an advance of one foot it can be determined in the following manner: Suppose the piston to be 20 inches in diameter, and the length of the stroke 28 inches. We find the area of the piston by multiplying the square of its diameter by the fixed decimal .7854; this decimal number, while not exact, is sufficiently so for all ordinary computations. Then $20^2 = 400$, and $400 \times .7854 = 314.16$ square inches, which multiplied by the average steam pressure (for convenience we will say is 100 pounds) gives 31,416 pounds pressure on the piston. As each piston must travel the length of the cylinder and return for each revolution of the driving wheels, and as there are two pistons, then we have this pressure exerted through four times the length of the stroke, and $28 \times 4 = 112$ inches, or 9.33 feet. Then 31,416 pounds $\times$ 9.33 feet = 293,111+ foot-pounds of energy exerted to move the locomotive and its load through each revolution of the driving wheels.

If it is desired to ascertain how much of this pressure is used for each foot that the locomotive advances, divide the total pressure exerted for the revolution of the wheels by their circumference. If the driving wheel is 4.5 feet in diameter, multiply the diameter (4.5) by 3.1416, which gives 14.13+ feet as the circumference of the driving wheels. The total pressure (293,111 foot-pounds) divided by the circumference (14.13 feet) gives 20,743 pounds, the energy exerted through each foot of the revolution of the driving wheels, or that the locomotive advances.

The tractive power increases as the diameter of the wheel diminishes. The locomotive in propelling a train has to overcome its own inertia and the inertia of the train, and also its own friction and the friction of the train. As the adhesive power is increased by the use of sand, so the friction of the different bearings, journals and valves, are lessened by proper lubrication. The effect of dry valves on the handling of a train is quickly noticeable, especially with locomotives carrying high steam pressure. In summing up, then, the following is true: That adhesion depends on the weight resting on the driving wheels, which is from 70 to 85 per cent. of the total weight of the locomotive, the balance of the weight being carried by the engine truck to avoid too long a rigid wheel base; that while endeavoring to get the greatest amount of adhesive power possible by the use of sand, so much must not be used as to increase the wheel friction of the train beyond the benefit derived by its use; that the tractive power is always less than the adhesive power; that the tractive power pull of a locomotive depends on the size and length of cylinders, average steam pressure and diameter of driving wheels.

The reason the smaller driving wheel increases the tractive power of a locomotive is that the fulcrum and point of application are brought closer together without shortening the leverage. It is well known in the use of the lever that the shorter the distance between the fulcrum and the point of contact (or bite, as it is often called) can be and still be effective, and the longer the lever, the more easily can the body worked on be lifted or moved. On a small driving wheel the lever, or crank, can not go beyond a certain length or, vice versa,

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the wheel can not be too small or the rod connections will strike on the ties. In conclusion, the *real* tractive power of a locomotive is the difference in power obtained through the agency of the crank lever over the pressure exerted against the piston in one direction and the cylinder head in the other.

W. L. FRENCH.

* * *

Soft Snaps; or, Firing Locomotives with Oil and Brains.

The question of using oil as fuel on locomotives in Texas and Louisiana, and some of the Western States since the discovery of the Beaumont and other fields of oil, has given rise to a number of topics; chief among them is the ease that a fireman has in performing his part of the duty in getting the train over the road successfully.

I presume that a majority of your readers have noticed that when a train is not making very good time, no matter what the fuel is, wood, coal or oil, the fireman in ninety-five cases out of a hundred gets the blame for the delay. As a general thing it is up to him; he may place it on something else, such as poor coal, engine would not steam; something was not just as it should be or he would have had his end up, and on time.

On the other hand, you may have noticed good runs made, in fact record-breakers; and how often have you noticed that the fireman was not even mentioned at all, and the credit of the run was absorbed by the engineer and conductor, when, if the truth was told, the first requisite to make the record was steam, the next was an engineer, and last, but not least, the hearty co-operation of the conductor and brakemen. The fireman is still *it* with oil as the fuel, and if it is to be used successfully it must be fired with brains.

You have read of the famous painter of Seville being asked, "How do you mix your paints to obtain such glorious results in your work?" and his answer, "With brains, sir." The same question can be asked any fireman using oil, and his answer should be "With brains." I don't pretend to say that it does not require brains to fire coal successfully, but with coal as the fuel you have a combination to work out. It requires strong manual labor to place six to fifteen tons through an engine, and if the man with the scoop fires it as it should be fired he will use his brains also, but not in the degree he is called upon to use them as with oil. A brainless fireman using oil can waste the amount of his trip's pay by the unnecessary use of oil in large quantities in the first twenty miles, and yet have steam over that and a great deal of the remainder of the trip.

A fireman caring for nothing but the arrival of the pay car can expend more money by the unnecessary use of oil while being delayed at the terminal, or in sidetracks, than his salary will amount to for an entire trip. Those two items alone make the man with brains (and who is willing to use his brains) a most valuable man for any company, and his services are invaluable to any railroad employing his as a fireman.

Forcing the firing by the too free use of oil works expensive in numerous ways. First, the asphalt and other foreign matter accumulates on the brick bed in front of the burner in a manner that will not be noticeable to the fireman who just turns the oil on and shuts it off when told to do so by the engineer, and if he did see it he would not believe it would have any effect in the making of steam, and if he thought it did, would he know enough to clean his brick off and save perhaps one or a half dozen barrels of oil over his division? The man using his brains would have seen that it was not there before he left the terminal, and would have prevented it by the use of his brains after he started.

Next, the flues become coated with soot, and sand, which also costs money, must be used in excess to cut it from the walls of the flues, and while he has been drenching the poor engine with all this sand he has also shortened the life of the beads on the flues. This would have been unnecessary with the fireman who fired with brains.

The crown-bar bolt-heads, the crown and side sheets, and also the flues, have to stand a part of his neglect and, I should add, lack of brains, as he has forced the fire to such a degree that a thin shell of the bolt heads has been burned—this may not be noticed on the first trip; it will stand a number of such abuses, but in the end it will be noticed, and their life has been shortened to a considerable extent. The crown and side sheets will stand the most abuse, but a cracked sheet is what follows the constant overheating and cooling of those parts. As a nail is finally driven to its head by successive blows, so is the destruction going on by repeated blows delivered by the careless man who would

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have you believe he is an oil-burner fireman, which, by the man that prides himself on the quality of the work he turns out, would not have happened.

I have not mentioned a word about the cost of all these repairs, or of all the delays to traffic and the overtime that will be paid, which in a great many instances can be laid to the man firing his engine without brains. Of course there are exceptions; an arch may be down; it may be defective; a draft appliance may be adjusted improperly to burn oil, and brains will have to be used to locate the defect, and adjust it to overcome the trouble.

A fireman who can locate and remedy defects as above enumerated, and prevent further delays to his or any other train, is a most valuable man, and what do you think his services are worth to the company employing him over the man that just "squirts" oil?

It is the very little things that count in any trade. The fine points that are overlooked by a number of men are grasped by others, and they are "specialists" in their work almost at once. This fact is as true in firing a locomotive as it is in other callings, and presents the man with brains to your attention in the most forceful manner. I have had some experience with firemen who had brains, and with those who had brains but forgot to use them in any other manner than to see how little they would have to exert themselves.

Antonio ———— is a fireman on our line who, to my own, and the opinion of a great many others on our line, makes the ideal oil fireman. Make an imaginary trip with us over the road and see how he performs his work; listen to what reasons he will give you for all he does, and when we have arrived at the terminal tell me do you think he has had a soft snap? Do you think he has earned every cent he will receive, and is he in your judgment tired, and ready for bed?

At the engine, "Anton" will want to know what work was reported upon his part of the engine, and on his side as well. He will look over his heater hose, and if it is not in first-class shape it must be before he starts. Ask him "What do you want to be so particular over that hose for? John never bothers about that hose," and he replies:

"No, I know he don't. John don't know enough to turn steam through a hose without blowing it to pieces, and he don't know what that hose is on there for."

The sand in his cab box and on the boiler is looked at, and the oil is measured by himself. He sees that the tender is full of water, and you can hear him grunt as he comes down and says:

"Six hundred gallons gone out of that oil tank, and that card charges a full tank up to us. Well, we will make a note of that; I want all the credit as well as the salary there is in this job; 600 gallons of oil used and the heater hose gone, and there is that valve leaking like the deuce, and oil at seventy cents a bafrel. I will have that fixed if it takes an 'act' from the 'Old Man' to get it done."

Old Alec, the high-ball switchman, is after us, but waits until we have things fixed up. We go down in the yard with about half a boiler of water, and 110 or 120 pounds of steam. He knows I have got to get orders, and the air has to be tried, so he has increased the feed of oil just a little to get onto the train. The engine gets hot gradually, but surely, and before I have got back he has her as full of water as we ever carry; every gallon of oil that has been burned has been for a service; the blower has been on just enough to create a draft, and no more, and you might step over to Anton and say to him, as I did later on, "John keeps that blower on full force and a person can not think for the noise," and you get the same reply from Anton that I did:

"He is a fool; what does he want to blow all the steam away for?—just to burn more oil I suppose. I wish some of these fellows had to buy all the oil they waste; they would be on the short list when pay-day comes around, and don't you know that with that blower on like a brass band those flues will go to leaking, and then it is more oil to keep her hot if she does not take up, and that was the reason that John run for water the other day, and was about out of oil when they arrived, and the boilermaker, 'Pluggy,' told me he had to caulk 140 flues before she went out; and it was every trip the same way with John—and some of the others—and I might ask, what was the expense chargeable to in this instance?"

We have started and are out of the city limits, and I notice Anton getting his sand funnel ready, closing his dampers, and when I have her working hard the sand funnel goes in, pointed upwards, and he sprinkles sand in by the cupful, not in buckets, as I had noticed John do in a trip previous. I have to re-

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mark on the difference of the way both men are doing the work, and this is the reply I received:

"You have got to get that sand over the arch; I don't want any of it on the brick in front of the burner, and it is all rot to run a bucket of sand through an engine and not give her any more for another fifty miles. I want to give her a little and give it often, and my flues will not be all plugged up when I get in, and have to have 'Smutty' run his auger through every flue before she goes out. Another item of expense saved."

Every move I make with the throttle or reverse lever is followed by similar movements on the part of Anton. He seems to be reading my very thoughts, as every sag or hill we come to I see his eye on me and his hand on the oil valve. Every move of that valve means a saving of oil, and the way he plays with the pointer on the gauge, up to her full pressure wherever it is needed, but with no popping and no blower howling—everything working like clockwork. The last seven or eight miles are down grade into our terminal, and Anton has swept up everything and wiped the cans and oil shelf, put all the dirty waste in the oil box to use starting fires, and I say to him, "Anton, are you tired?" He replies:

"Yes, I am ready for bed; I am shook to pieces. Some fellows tell me they sleep up Seco, but I have not yet found out how to do it."

I say to him, "Antonio, how do you like oil comparing it with coal?" and he replies:

"Well, I am just about as sore and tired when I get in as I used to be on the old 694 with coal. This sitting with your eye on the engineer, and on the watch all the time, is tiresome if you do your work as it should be done, and I want to ask you, are you tired? You have had nothing to do but sit up there and look wise, take an oil can and oil around a few times; you have not walked a mile all night; what is the company paying you for, anyway?"

That was a stunner, from a fireman, too. I replied to him as truthfully as I could, yet I hated to admit I was tired. "Yes, I am tired, tired thinking all night; I started out with a pocket full of orders and everything to meet; that main pin wanted to run hot and it kept me busy all night."

"Well," said he, "you don't mean to tell me that thinking tires you—a great big engineer—do you?"

I had to admit it had treated me that way, and I had to admit the force of his argument that he had the work taken off his back and placed upon his brain, and that he could get just as tired as myself, and that a man who did his work as I had observed Anton do his, used his brains on each and every occasion, and saved oil whenever it was possible to do it. I was not done with him yet, and I asked him another question: "I suppose, Anton, you have heard that the company wanted to cut the pay on these oil-burners; what do you think about it?"

"Well," said he, "if they think I can drink this oil, or that I can feed my wife on this oil it might work all right, but I can not do it. They did not talk about raising my pay when they loaded us with dirt and called it coal for several years, and why they should dream out loud about a reduction when the cost of living is so high I can not understand. I think the firemen should attend to their business while on the road in such a manner that the officials could refer with pride to the saving in everything that was affected by the use of oil, but rather than stand any reduction I will take a coal-eater every time."

"Well, Antonio, I have heard that a man can learn to fire oil in about one trip; what do you think about it?"

"I have been at it," said he, "for a year now, and I am learning something every trip, and, in my opinion, a man that would say you could learn it in a day, week, or a month, or even a year, all there is to be learned, doesn't know what he is talking about, and the men that learn in the space of a day are very dear men to the company."

We were both tired, and voted about ten hours rest was what was needed, and when that was inscribed on the register we hit the hay. FRED BARR.

* * *

Kincaid Locomotive Stoker Test.

For the benefit of those who have never heard of, and have never had any experience with the Kincaid Stoker, I would say in regard to same that I have given the stoker a fair trial and I find it has a good many advantages over hand firing. I operated the stoker on a heavy passenger run, known as the "F. F. V. Limited," on the C. & O. R. R., and it was the first time the stoker was ever placed on an engine of that class. The weight of the engine was 173,000 pounds, having cylinders 22 x 28 inches. The train consisted of nine coaches, and we had a very

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heavy grade and a very poor quality of coal, but the stoker could keep from ten to fifteen pounds more steam than I could with hand firing and first-class coal, and that intense heat in the cab from the firebox was entirely avoided.

I think that much credit is due Mr. Kincaid as inventor of one of the greatest labor-saving machines ever made, and if the firemen will only give the stoker a fair trial they will find it a friend instead of an enemy. J. R. WILSON.

Talks With an Air Brake Instructor

By E. G. Desoe

Dialogue No. 18—High Speed Brake.

Student.—The High Speed Brake is rapidly coming into use and I would like to understand how it operates, and what benefits are derived from its use.

Instructor.—Some few years ago railroad managers were induced to equip their trains with continuous power brakes so that when an emergency arose they could be stopped quicker than by the use of hand brakes, and thereby reduce the number of accidents and make it safer for the traveler and the employes. Later they were induced for the same reason to adopt an improved triple valve, known as the quick-action, that their trains might be stopped still more quickly when an emergency arose. And now they are on the eve of advancing another step by adopting an improvement known as the High Speed Brake, which will shorten the stop which may be made with the ordinary quick-action brake at high speed about one-third.

Reducing the distance in which a train may be stopped in an emergency is the principal benefit derived from its use. Another great advantage, however, is that two full service applications may be made and then, without recharging, the train may be stopped in as short a distance as with the ordinary quick-action brake. Do you know what additional parts are necessary on an engine to change from the ordinary quick-action brake to the High Speed?

Student.—I think I do. Another top to the governor is required, that is, with the High Speed a duplex governor is used. They are so arranged that one may be cut out. Two slide-valve feed-valves, instead of one, are so arranged that either may be cut out. A forward truck brake. An automatic reducing valve connected to the driver and truck brake cylinders. A quick-action triple valve instead of a plain triple on the tender, and an automatic reducing valve connected to the tender brake cylinder.

Instructor.—All engines that are equipped with the High Speed Brake should also be equipped with a forward truck brake, but the forward truck brake is not a part necessary to change over to the High Speed. What are the parts necessary on a car?

Student.—An automatic reducing valve connected to the brake cylinder. Why should all engines equipped with the High Speed be equipped with a forward truck brake if it is not a part of the High Speed apparatus?

Instructor.—About one-third of the weight of an engine is generally carried by the forward truck, and when it is not equipped with a brake about one-third of the braking power available is not utilized. As I have explained, cars and engines are equipped with the High Speed Brake that they may be stopped more quickly in emergency; it would, therefore, be unwise not to utilize this braking power, for the object sought is to be able to stop the train in the shortest distance possible, and the braking power of a forward truck will certainly assist. The diagrammatic sketches will give you a good idea of the proper arrangement of the different parts.

We will first take up in detail the construction and operation of the automatic pressure-reducing valve. Figs. 1, 2, 3, 4 and 5 will help you to understand my explanation. The purpose of this valve is to prevent too high a pressure being developed in the brake cylinder by a service application, and with an emergency application permit a much higher pressure to be developed and then permit that pressure to be reduced gradually until the pressure which the valve is adjusted for is reached, which pressure is retained until the brake is released. In the figures referred to *4* is the valve piston; *6*, piston stem; *8*, slide valve; *9*, slide-valve spring;

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11, regulating spring; *12*, regulating nut; *13*, check nut; *17*, union strainer.

Piston *4* and slide valve *8* are connected so that any movement of the piston causes a like movement of the slide valve. The chamber around the slide valve, and above the piston, is always in communication with the brake cylinder through the pipe which connects them and, therefore, contains "brake cylinder pressure" when there is any pressure in the brake cylinder. The regulating spring *11* pushes up on the piston and tends to keep it in its upper, or normal, position. The tension of this spring should be adjusted so that the air pressure, acting on top of the piston, tending to push it down, must exceed 60 pounds before it will be moved down. When it is so adjusted, do you think it will be moved down its entire stroke should the pressure be only a few pounds in excess of 60?

Student.—No, I do not think it would, but I should think it would be moved down some.

Instructor.—You are right. It will be moved down some, but will not be moved down its full stroke until the pressure is about 77 pounds, the entire movement being about 7-16 of an inch.

Student.—Is there ever any air pressure on the under side of piston *4*?

Instructor.—There should not be any air pressure on the under side of this piston, and there will not be any if the opening in check-nut *13* is kept free, for any leakage by the piston will escape to the atmosphere. In the face of the slide valve 8 is a triangular shaped port, and in its seat a long, narrow port. The triangular port in the cuts is marked *b*, and the long, narrow port *a*. When the piston is in its upper position the triangular port is above the long narrow port in the seat of the slide valve and, therefore, this port is now covered by the slide valve and no air can escape through it to the atmosphere. Fig. 3 shows the slide valve in the position referred to.

Student.—I understand that port *a* in the slide valve seat leads to the atmosphere.

Instructor.—That is right, as can be plainly seen in Fig. 1, as the port *a* is directly opposite the exhaust port *Y*. The first movement downward of the piston brings the large part of the triangular port in the slide valve in register with the long, narrow port in its seat, so that the full opening of port *a* is had. The parts are shown in this position in Fig. 4. The pressure on top of the piston, in excess of 60 pounds, to move it to this position is about 8 pounds, that is, when the air pressure above the piston is about 68 pounds the piston will have been moved by it to the position shown in Fig. 4. As the piston is moved further down the opening becomes restricted, due to a smaller part of the triangular port coming in register with port *a* in its seat, until it finally reaches its lower position when the smallest opening is had. This position is shown in Fig. 5, and, as I said before, requires about 77 pounds pressure of air on top of the piston.

Student.—I understand that the port opening, through this reducing valve to the atmosphere, is in proportion to the air pressure in excess of 60 pounds which is above the piston, and that the smallest opening is had when the pressure is the highest. This does not seem right to me. I would expect the opening to increase with the pressure.

Instructor.—Your understanding is correct; the opening decreases as the pressure increases and, although this does not seem right, it is as it should be, and I will try and make it clear to you why it is so. You should first understand that the piston is moved back by the regulating spring as the pressure reduces, until it is finally back to its normal position with a pressure of about 60 pounds on top of it. We will leave the reducing valve for awhile, and I would ask if you know what it is that stops the wheels from revolving and, therefore, stops the train?

Student.—Why, yes; it is the shoes being forced against them.

Instructor.—That is right. Now suppose we had a pair of wheels in a lathe so that we could have them turn around slowly, or at a very rapid rate, and we take a flange brake shoe which fits this wheel nicely. We will suppose it is one that has been running on this wheel, and place it on top of the wheel, and on top of the shoe place a hundred pound weight which we will fasten securely to the shoe. The weight has a rod attached to it, on the end of which is a handle, so that you can stand back away from the wheel and hold on to it. Now we will suppose that the wheel is revolved slowly, so that it will have a tendency to pull the rod out of your hands, and the speed of the wheel is gradually increased until it is revolving at a rapid rate. When do you think you would have to hold on the hardest, when it is revolving slowly or at a rapid rate?

Student.—I should certainly say that it would be harder to hold when the wheel was revolving at a rapid rate.

Instructor.—No, you are mistaken; it

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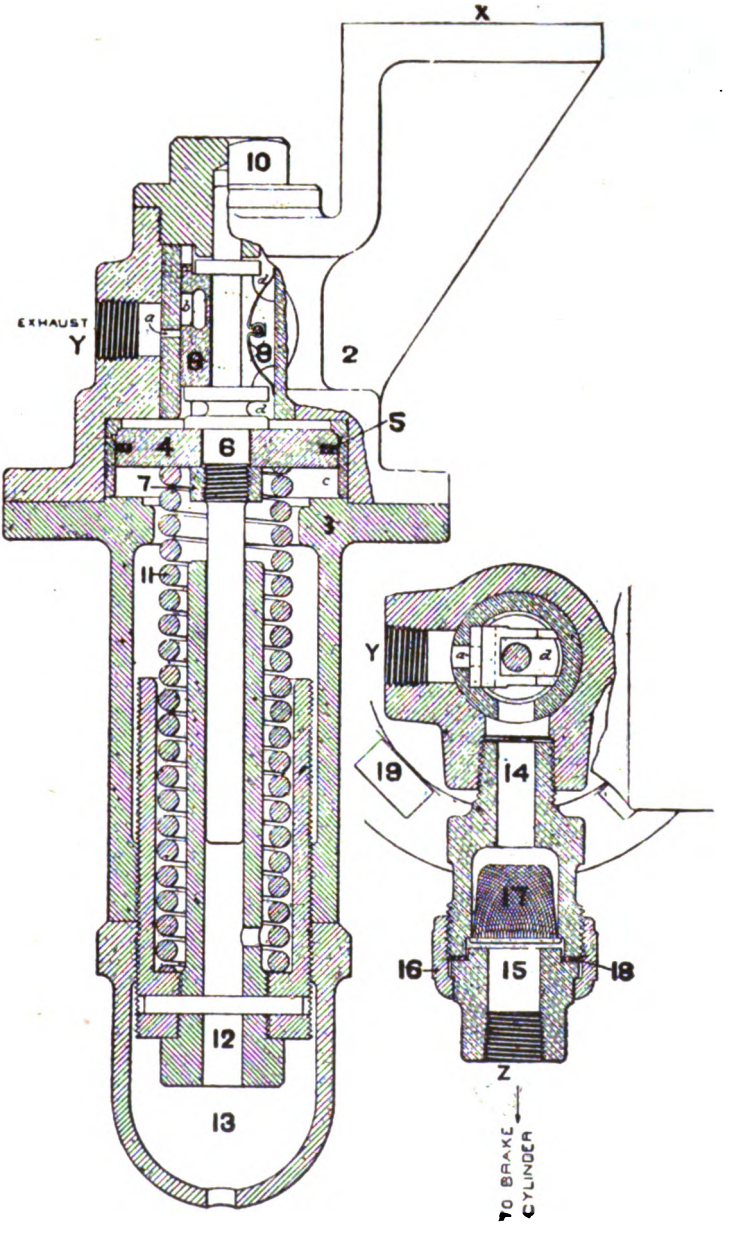


Fig. 1 Fig. 2

Automatic Pressure Reducing Valve

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would be necessary for you to hold on much harder when the wheel is revolving slowly than when it is revolving at a rapid rate. The friction, or resistance, which a shoe offers to a wheel revolving depends principally on the pressure of the shoe to the wheel and the speed at which the wheel is revolving. When the pressure remains constant, as it did in the case referred to, then the speed of the wheel would only affect the pull on the rod which you were supposed to be holding. What causes friction is the wearing away of the shoe and wheel, and what causes the wearing away is the little hills, or raised particles, on the shoe engaging with those on the wheel, and the faster the wheel revolves the less they engage, therefore the reason for less friction when the wheel is revolving at a high rate than when revolving slowly.

Student.—I understand that all shoes and wheels have this roughness you speak of, although they appear to be perfectly smooth?

Instructor.—You are right. The amount of retardation which a wheel will stand and not skid, or slide, depends on the adhesion of the wheel to the rail. The adhesion depends principally on the pressure of the wheel to the rail, and is the same at all speeds, or so far as is known. With the ordinary quick-action brake the pressure in the brake cylinder and, therefore, the pressure of the brake shoe to the wheel, during an emergency stop is the same throughout the stop. It is necessary, therefore, with the ordinary quick-action brake, that the pressure of the shoe to the wheel does not cause more retardation to the wheel at a low speed than what the wheel will stand without sliding, and this retardation is necessarily very much less than the wheel will stand at a high rate of speed. To stop a train in the shortest distance possible the retardation should be just as much as the wheel will stand without sliding all the time during the stop. With the brake leverage such as passenger cars are equipped with it has been found in practice that 60 pounds pressure in the brake cylinder results in as much retardation as the wheels will stand without sliding when the train is running at a slow speed. This pressure, as you know, is obtained by an emergency application from 70 pounds train line and auxiliary reservoir pressure. In order to obtain greater retardation with the High Speed Brake, 110 pounds train line and auxiliary reservoir pressure is carried, which, when the brake is applied in the emergency, develops about 85 pounds pressure in the brake cylinder. With this pressure in the brake cylinder the braking power is increased from about 90 per cent. of the light weight of the car to about 125 per cent. As this pressure would result in more retardation than the wheels would stand at a slow speed, the automatic reducing valve is provided to reduce the pressure as the speed is being reduced, the result being that the train is stopped from a high speed without sliding the wheels, in about one-third less distance than with the ordinary quick-action brake. When the brake is applied in the emergency the pressure is developed so rapidly in the brake cylinder that the piston in the automatic reducing valve is moved rapidly down to its lower position, in which position you will remember the smallest opening through the reducing valve is had. The valve when adjusted for 60 pounds should reduce the brake cylinder pressure from 85 pounds to 60 pounds in about 27 seconds time, at which time the piston in the reducing valve will have resumed its normal position and the slide valve will have covered port *a*, preventing any further escape of brake cylinder pressure until the triple is moved to release position.

Student.—What would the result be should the brake be applied in the emergency at a slow speed?

Instructor.—If the speed was very slow it would evidently result in sliding the wheels. However, the necessity of an emergency application at slow speed is not likely to occur very often. A service application is made quite a little quicker with the High Speed Brake than what it is with the ordinary quick-action brake, due to air passing through ports more rapidly when under high pressure.

Student.—What is the action of the reducing valve when making a service application?

Instructor.—When making a service application the pressure is developed slowly in the brake cylinder, and the piston in the reducing valve is moved down slowly and, when it has moved down far enough so the slide valve assumes the position shown in Fig. 4, the air will escape through port *a* as fast as it can enter the brake cylinder through the ports in the triple valve, and the pressure should not increase very much above that at which the reducing valve is adjusted for. In making a service application, however, care should be taken not to make a reduction which will cause sufficient pressure to be developed in the cyl-

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inder as to move the piston of the reducing valve down far enough to have port *a* open. It has always been a great

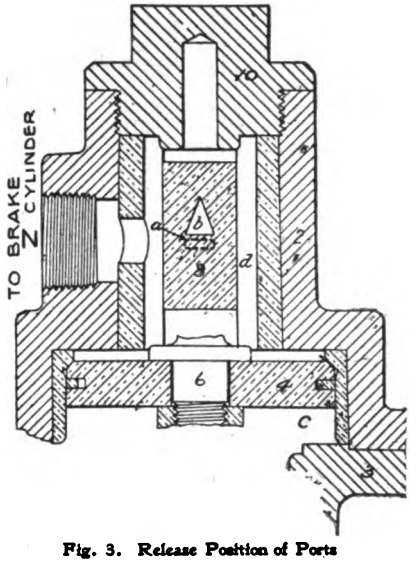


Fig. 3. Release Position of Ports

point of air brake instructors to dwell on the waste of air, if more than a 20-pound reduction is made with the ordinary quick-action brake. This, however, is only a waste of train line air, whereas if more than about 20 pounds reduction is made with the High Speed Brake, not only train line air will be wasted but

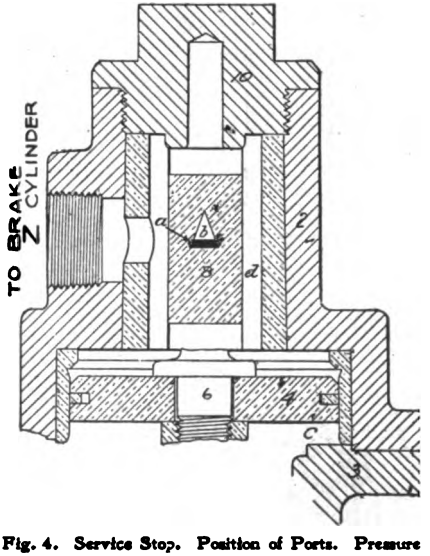


Fig. 4. Service Stop. Position of Ports. Pressure Exceeding 60 Pounds in Brake Cylinder

auxiliary reservoir air will also be wasted, which is of very much more importance.

With the ordinary quick-action brake, 10-inch brake cylinder and 8-inch piston travel, 16 pounds reduction will cause the auxiliary pressure of 70 pounds to equalize into the brake cylinder at 54 pounds pressure. With the High Speed Brake, train line and auxiliary reservoir pressure 110 pounds, a 16-pound reduction will develop in a 10-inch brake cylinder with 8-inch piston travel 54 pounds pressure.

Student.—I can not understand how that can be. I should think that with the same reduction, 110 pounds pressure in the auxiliary reservoir would give very much more pressure in the brake cylinder than when the auxiliary reservoir is charged to only 70 pounds pressure.

Instructor.—As 10 pounds reduction will be a more convenient one to consider in this explanation, I will say the 10 pounds reduction will develop 27 pounds pressure in a 10-inch brake cylinder with 8-inch piston travel, whether it

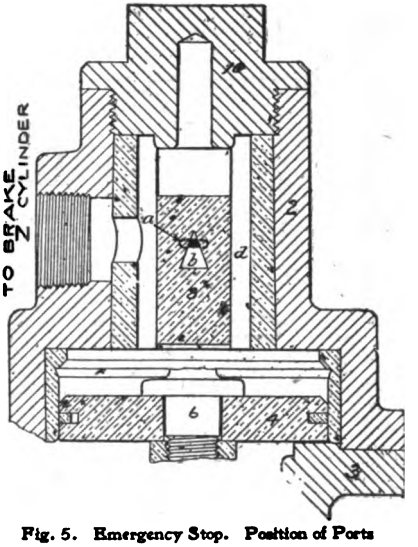


Fig. 5. Emergency Stop. Position of Ports

is made from 70 pounds or 110 pounds auxiliary reservoir and train line pressure. How many 10-pound reductions must be made before all the pressure will be gone, if it should be exhausted to the atmosphere through the release cock, from an auxiliary reservoir charged to 110 pounds pressure?

Student.—I understand that the pressure is to be permitted to escape, 10 pounds at a time, through the release cock in the auxiliary reservoir, until it

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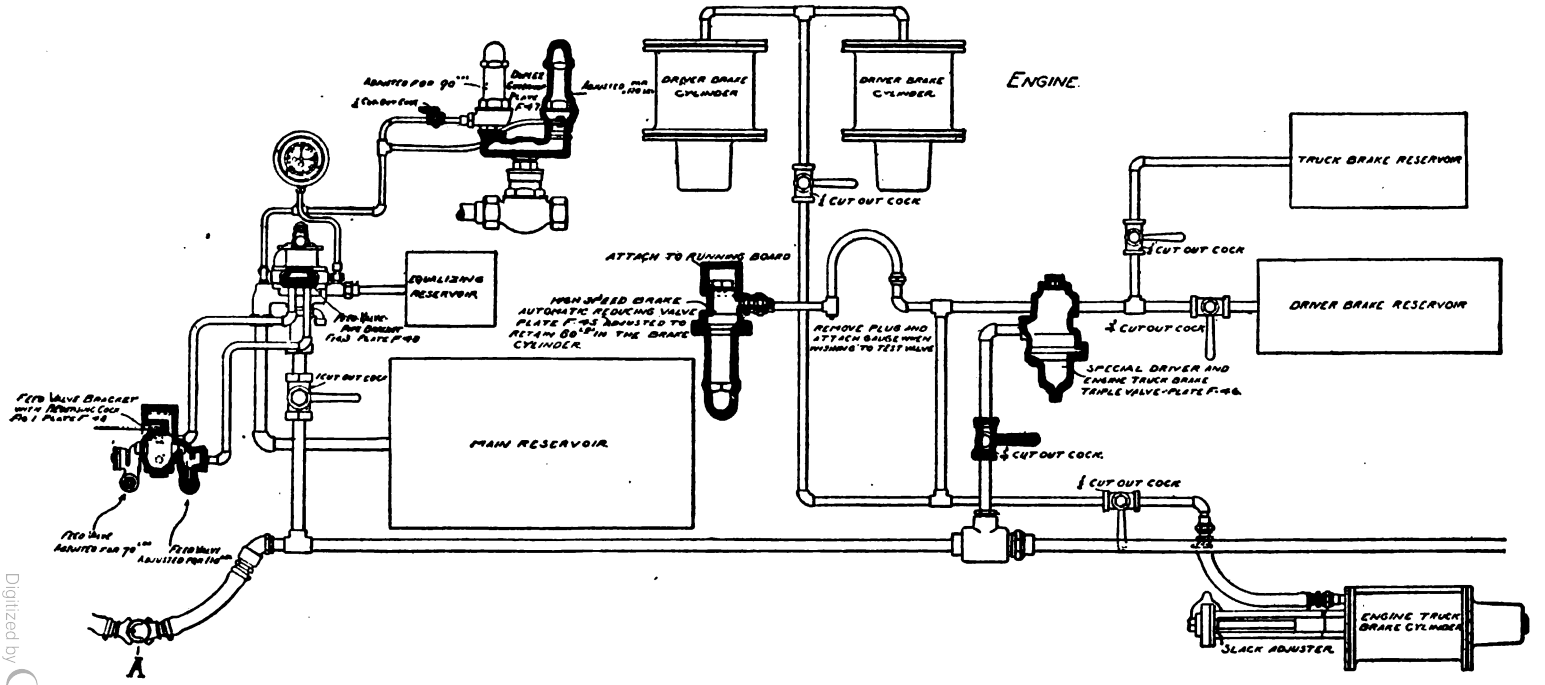


Fig. 6. Engine Equipment of the Westinghouse High-Speed Brake

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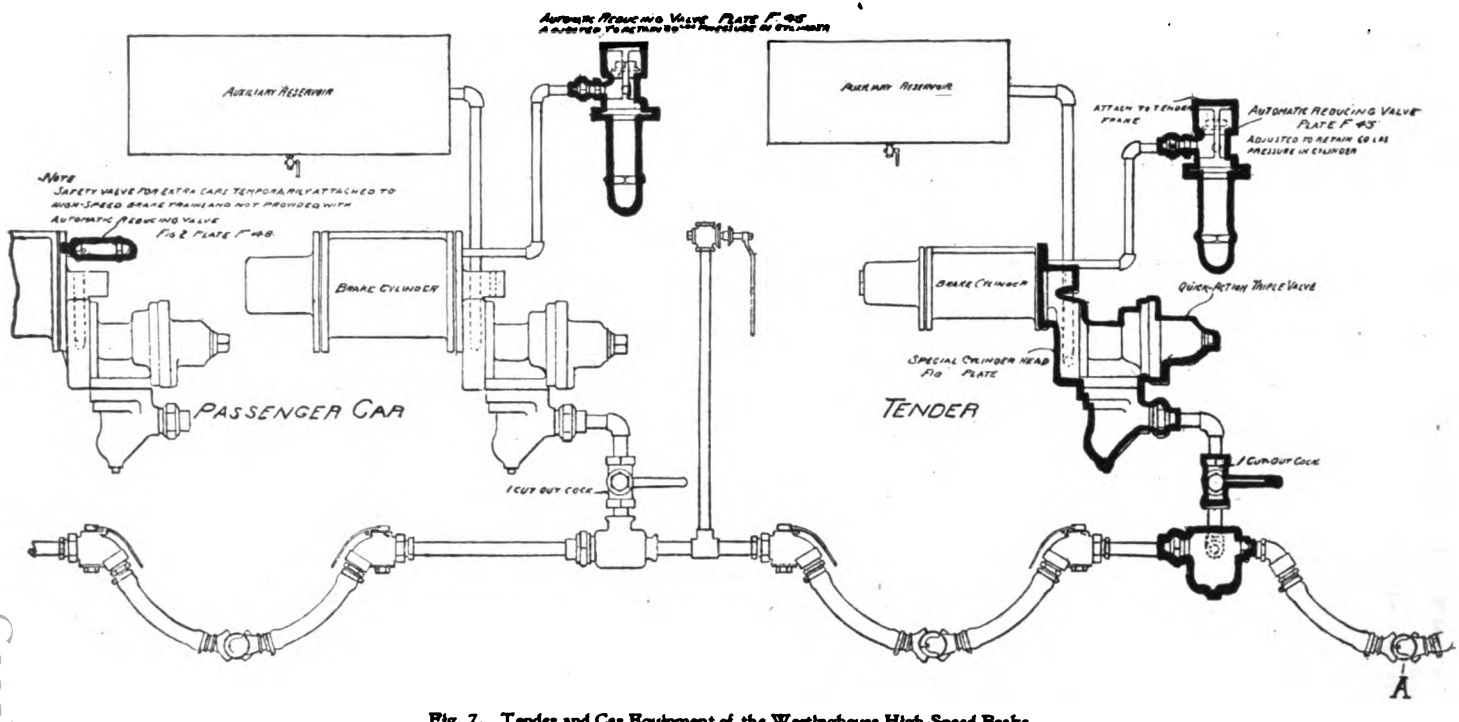


Fig. 7. Tender and Car Equipment of the Westinghouse High-Speed Brake

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is all exhausted. It would require 11 reductions.

Instructor.—That is right. Now suppose that the auxiliary was only charged to 70 pounds pressure; how many reductions would be required?

Student.—It would require only seven 10-pound reductions in this case.

Instructor.—I now want you to imagine that the auxiliary reservoir contains 110 pounds pressure, divided into eleven separate cells, so arranged that they can be removed and still contain 110 pounds pressure of air, and that the auxiliary reservoir containing 70 pounds pressure is divided into seven separate cells arranged so that any one of them can be removed, and still contain 70 pounds pressure of air. The two reservoirs, you understand, are of the same size, so the cells in the one containing eleven cells must be somewhat smaller than those in the one containing only seven cells. If we should take out one of those cells from the auxiliary containing 70 pounds pressure and in some way squeeze it together so that it is no larger than one of the cells in the auxiliary reservoir containing 110 pounds pressure we would have 110 pounds pressure in this cell also. Again, if we should measure the number of cubic inches of free air in a cell taken from each reservoir we would find that they contain exactly the same number. So it is really the same amount of air that we admit into the brake cylinder, whether it is 10 pounds from 110 pounds or 10 pounds from 70 pounds.

The same pressure will be developed in the brake cylinder so long as no more pressure is admitted from the high pressure auxiliary reservoir than what is required from the low pressure auxiliary reservoir to equalize the pressure into the brake cylinder.

Student.—You have certainly made that very clear to me.

Instructor.—As I said before, 20 pounds reduction will develop about 60 pounds in the brake cylinder, and if a further reduction is made, not only the train line air will be wasted but the auxiliary pressure will also be wasted, and very little if any more pressure will be developed in the cylinder, but if no more reduction is made than what is necessary to develop 60 pounds in the cylinder the brake may be released, and without recharging again applied and 60 pounds again developed. The brake can now be released, and without recharging applied in the emergency, and as much pressure developed in the cylinder as can be with the ordinary quick-action brake.

Student.—I should think this would be a great benefit on fast passenger trains.

Instructor.—It certainly is, but can not be had unless the brake is handled as it should be.

Student.—Why are two tops to the governor required, and two slide-valve feed-valves?

Instructor—One top to the governor is adjusted for 100 and the other for 140 pounds pressure, both being connected to the main reservoir pressure. In the pipe from the low pressure top is a stop-cock. When it is open the high pressure top does not affect the operation of the governor, but when it is closed then the pressure is permitted to accumulate in the main reservoir until the pressure at which this top is adjusted for is reached. One slide-valve feed-valve is adjusted for 70 pounds train line pressure, and the other 110 pounds. They are so arranged that either one may be cut into use. The object of having a low and high main reservoir and train line adjustment, which may be cut into use by simply changing the position of a stop-cock, is to facilitate the changing from the ordinary quick-action brake to the High Speed Brake.

Movement of Trains

By H. A. Dalby

Work Trains.

There is a great diversity, on different roads, in the methods of handling work trains. This is due not only to the ideas of the men who form the rules, but to local conditions, and also to the relative importance of the trains concerned.

Printed rules with regard to work trains are few. The Standard Code contains only Form H for single track and D-Form H for double track, authorizing the forms of train orders, and the few words of Rules 97 and D-97. In various codes, however, other rules appear with reference to their government.

The Standard Code form provides for the time limit to be fixed in the order, but on some roads the book of rules es-

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tablishes the limit, which is usually from 6 a. m. to 7 p. m., and work orders are in effect only between those hours, unless the order specifies others. In giving an order under a rule of this kind it is necessary to give the date on which it is to be used, and is in the following form: "Engine 292 will work extra Saturday, May 2d, between Berne and Turin." If it is desired to work at a time other than that specified by rule the order reads: "Engine 292 will work extra until 9 p. m. Saturday, May 2d, between Berne and Turin."

Another provision, which we think is of considerable value, is found in some rules and requires the conductor of a work train, when he is done using his working orders, to send a message to the effect that he is "tied up," and this "tie-up" annuls his working order. This very often facilitates the work of the dispatcher.

There are a number of methods for handling a work train with respect to its relationship to freight trains passing over the road. Of course the desired end is to give the work train the use of the track until the expected train is to pass over the portion so occupied, the work train to immediately clear the main track, but this is extremely difficult to perfectly accomplish unless the freight train is on a schedule and on time. For extra trains and for regular trains which are late we know of no way whereby, generally speaking, this can be accomplished without some delay to either train, for the reason that there is no dispatcher who can correctly guess, an hour or two in advance, what time a train will be at any particular point.

The nearest approach to its accomplishment is by the use of examples (b) and (e) under Form H, whereby the work train is permitted to work under protection of a flagman until the expected train arrives, but even then there is often delay to the freight train, especially if the work extra must run toward the approaching train in order to get in on the siding. On the other hand, where the work train must clear the main track at a certain time, whether the expected train is there or not, a serious delay often results to the former.

There are various practices. If the freight train is very important and it is desired that it run over the working limits without any delay whatever, it is given (in the case of a regular train) either a "run late" order or a "wait" at a certain station until a certain time for the work extra. In the case of an extra this can be accomplished by the use of example 1 (b), using the words "keep clear of." This almost invariably incurs delay to the work train and should not be used unless the freight train is of great importance. As a rule the loss of time to the work train is more expensive than a corresponding loss to a passing freight train, and for that reason the Standard Code provides for a work train to work under protection of a flagman until the expected train approaches. The prescribed forms are found under example 1, (b), (d) and (e).

We know of at least one road where the rules permit a work extra to protect against second and third class trains, and we think it is a good rule. It relieves the dispatcher from sending a great many long train orders, and in our experience we have seen but very few freight trains of so great importance that this rule could not be used to advantage. Of course it must be understood that the work train must get out of the way immediately on the approach of the other train, and if necessary it can be instructed by message about when to expect an important train and practically no delay will result. On many roads where this rule is not in effect it is the custom to insert in the order a provision to protect against second and third class trains, which accomplishes the same result, but with considerably more work for the dispatcher.

In reviewing the rules of another large system we find the following under this form:

"When an order has been issued to 'work' between designated points, no other extra shall be authorized to run over that part of the track without a definite meeting order with the work extra.

"When it is anticipated that a work extra may be where it can not be reached for orders it may be directed to report for orders at a given time and place, and a meeting issued with other extra.

"To enable a work extra to work upon the time of a regular train, the following form may be used:

" 'No. 55 will wait at Berne until 6 p. m. for work extra 292.' "

There is no provision in the rules of this road for a work train to protect against another train. The work train must have a "meet" order with other extras, and the only means whereby it can work on the time of a regular train is by the use of the "wait" or "meet" order.

Another method, which can be used where the limit is very short or the work

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train is in full view of approaching trains in either direction, is to give the work extra right over all except first-class trains. This relieves it from protection by flagman and trains approach the limits prepared to stop, when the work train immediately gets out of the way. Should the work train not be there the train can "flag" through the limits, as of course they are favorable for so doing. This plan is worked successfully on some roads, though there may be some officers who would object to it.

There are different methods of interpreting the "right" order in the case of a work extra having right of track over other trains. Suppose the following order is issued:

"Engine 292 will work extra until 7 p. m. between Berne and Turin and has right over extra 296 east."

We will suppose Berne and Turin are one mile apart. We know one road where extra 296 would not enter the limits until 7 p. m., even if it saw the work extra on the siding. It would consider that the latter train had absolute right to the track over the extra until its order expired. We know another where extra 296 would proceed if it saw the work train clear of the main track, but not otherwise. On another road the extra would waste no time if the work train was not in sight, but would flag through the limits. We like the enterprise of the last mentioned road and believe that train movements can be facilitated very greatly in many cases by a little effort and the use of a red flag.

There are a few roads that require the working order to be addressed to all trains (or to all except first-class trains) and placed at either end of the working limits so that such trains may be advised of the presence of the work train. This does not, however, confer any additional rights on the work extra, but only serves to notify approaching trains.

Provisions in the Standard Code being so few, it is but natural that certain questions should arise in the handling of work extras, and we find a number of rules from different roads which answer some of these questions.

On a large western system where the time limit is fixed by rule from 6 a. m. to 7 p. m., we find the following:

"A train receiving an order to protect against a work train extra and not reaching the limits mentioned in the order before 7 p. m., must not assume that the work train extra is laid up or clear of the main track, but must protect against it, unless such order is superseded or annulled."

This is on the general question of whether all orders concerning a work train are annulled at the time the working orders expire, either by the time in the order or by rule. This is the only rule we know of which has any bearing on the subject and it will be noticed that this directs the train to continue to protect; a provision on the side of safety.

Orders have been issued directing a train to meet a work train at a certain point and have not been executed when the working order expired, and the question has been asked whether the train should continue to wait for the work extra. A work extra has had orders to protect against an extra or regular train which did not arrive until the working order had expired, when a new working order was issued. Shall the work train continue to protect against the extra or *may* it continue to protect against the regular train? These are questions which we can not answer by rule and all we can say is to *take the safe side*, as indicated by the rule we have quoted. We think the dispatcher, in putting out orders of this kind, should include such provisions as will insure safety.

We quote another rule which we presume is the result of certain questions which have been raised.

"If a subsequent order to go to other parts of the road be received, the original order expires and must not be used again.

"In case orders should be given to a point outside of the working limits for water, fuel, or any other cause, and it be desired that the 'working order' should not be canceled, the subsequent order should state that the working order (giving proper number and reference) will remain valid."

The question has been asked if a work train should register every time it comes to a registering station, and we believe it is a general requirement. If its limits, for instance, are on both sides of a registering station, and this rule is adhered to, it will show at all times on which side the work extra is. Should an extra be started from such registering point this information would, of course, be essential.

We have seen, in the case of a work train which occupies the same limits for several days or weeks, what might be termed a "permanent" or "standing" work order. It is put out to all trains, or to certain trains, on each side of the limits, and is something after this manner:

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"To all trains east except 1st class,
"A.

"To all trains west except 1st class,
"C.

"Between 6 a. m. and 6 p. m. daily, except Sunday, engine 292 will work extra between Berne and Turin and will protect against all except 1st class trains."

This may be varied, of course, by making the working limits between certain mile posts or defining them in some more specific way, also in the provisions regarding other trains. When the limits are short the work train can be given right over all but first-class trains, which will relieve it of flagging, but other trains will be required to flag through the limits.

The question has been asked as to the proper way to extend the time limit or the working limit after the original order has been issued. We do not know of any authorized form either in the Standard or any other code. We have seen orders given in this form:

"To C. and E. Eng. 292.

"Your limits are extended to 9 p. m."

We prefer, however, to send a new order, as it is according to the authorized form and gives less occasion for question.

With an order reading, "Eng. 292 will work extra until 7 p. m. between Berne and Turin," it has been asked if the work train can use the main track at both the stations named. For instance, supposing Berne to be the western limit and Turin the eastern, has the work train a right to the main line up to the west switch at Berne or to the east switch at Turin? Whatever may be the correct answer or whatever the general understanding we know of one superintendent who requires that work orders shall specify definitely what point on the main line is the working limit. Orders on this line are therefore put out in the following form:

"Eng. 292 will work until 7 p. m. between east switch Berne and west switch Turin."

The idea is to fix definitely in the order the exact place, and it appears to possess some merit, yet we think an understanding could be had as to what is meant if only the names of the stations are used, thereby saving time and words in many cases.

For double track work the Standard Code provides that an order to work extra between certain points must be accompanied by one of four additions which are prescribed under D-Form H (Page 292, March Magazine). The first two indicate on which track or tracks the train is to work and whether or not it is to protect against extra trains, the rule being that it shall protect against extras moving in the current of traffic unless relieved from so doing by the working order. The third addition gives it the right to work on the time of specified regular trains by protecting itself, and the fourth requires it to protect against trains which may be moving against the current of traffic.

We believe that, generally speaking, on double track, the simple work order is used and that it is understood to give the train a right to use the main tracks *only in the proper direction* between the points named. So far as each track is concerned, therefore, it is an extra, and governed by the same rules as an extra passing over the division, and if it stops on the main track is required to protect against all following trains, as per rule 99, which of course includes extras. The only advantage in a work order is that the train may run back and forth between the stations named (always on the proper track), or may use an intermediate cross-over if necessary. It confers no right to run in the wrong direction unless the order so specifies.

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On "Mechanical Spotters."

We wish to call attention to an article which appeared on page 530 of the May issue of the Magazine, reproduced from the Milwaukee Sentinel, entitled "A Mechanical 'Spotter' on the Engineer." The article states that on a run recently made of 88 miles, this machine showed the pop valve to have been opened 794 times, thus causing a waste of coal amounting to six tons.

Now, we wish to ask how long that engine was in making the run. We have fired engines for about four years, have fired all kinds of coal, and we don't understand how in God's name it was possible to waste six tons of coal, as we don't think you could put more than that amount in the engine in that distance. We also wish to ask how the machine so quickly caused the decrease in this needless waste of steam and fuel? Of course, we are not trying in any way to discourage the inventor of this wonderful machine—which we know must be all right.

We have a machine out here which we use very effectively to prevent steam from going to waste through the pop valve. Our machine may be somewhat of a "mechancial spotter" herself, but through

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our blamed ignorance we have called it a "hog-head." Now, we don't want to take up room in the Magazine that would be more valuable for some other purpose, but we hope to become enlightened on this subject.

E. A. CROWE,
J. I. BRENNAN.

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The Running Test.

A correspondent writes: "I wish to get some data relative to the "running test" of air brakes, and wish you would kindly reply to the following:

"Do your rules, or instructions, to enginemen require them to make the running test?

"What is your opinion of this test toward being a factor of safety, in connection with the handling of passenger trains?"

In connection with the most approved methods of operating air brakes on all trains of whatever class, passenger or freight, there is one test of the brakes that all air brakemen are agreed should be made, and that is the standing test.

Failure to make this test before leaving terminal stations, or stations where cars may be taken from, or added to, a train, or when any change is made in the make-up of the train should be considered by all concerned a serious disobedience of rules, and also a lack of good judgment on the part of the guilty.

The standing test is required to prove to the crew in charge, that the air is cut in throughout the entire length of the train; that the exact number of brakes working may be determined; that the piston travel of each may be known, and that if any defective brakes be in the train they may also be known, and be repaired, if time will permit, or may be cut out, so as not to interfere with the proper working of the others if they can not be repaired quickly.

No matter what the circumstances or the conditions may be under which trains are operated, the standing test ought never to be omitted.

Of the tests recommended to determine whether all brakes on a train are working or not, the standing test is the all important one.

To further safeguard against failure of the brakes to operate at a critical moment, it is recommended that a running test, or application, be made when approaching railroad crossings, derailing switches, meeting points on single tracks, and all places where the train could not be run past the stopping point without danger of accident and damage, a sufficient distance back from the stopping point to enable the engineer to determine whether the air brakes will hold the train or not; and if not, to give him a chance to call for the hand brakes and to utilize any of the other means that he may have at his disposal to bring the train to rest before passing the stopping point.

This kind of running test should be approved by all concerned, although at the same time, conditions are such on many railroads that it would be well to investigate thoroughly the manner and the distance in which the test should be made in order to make the practice of this running test efficient.

What is generally understood as a running test for passenger trains, that is, a service application soon after the train is under headway after leaving a terminal and after having made a standing test, is, in my opinion, entirely superfluous and unnecessary, and may be productive of much harm.

As soon as the train attains a speed of 10 or 15 miles per hour the engineer applies his brakes to ascertain how they are going to hold, not that they are working —for the standing test proved that—but, as I view the test, he can not always obtain the information he wants; because the brakes may have a low percentage of braking force, and hold well when applied at slow speeds, and not hold satisfactorily at 60 miles per hour. And thus the running test might deceive, and this is what should be guarded against always in the operation of air brakes.

I once rode on the leading engine of a double-headed passenger train the brakes on which were in a deplorable condition, and when the running test was made, soon after leaving the terminal station, the brakes apparently held all right, and worked satisfactorily. About ten or twelve miles from the starting point, the train had attained a speed of 54 miles per hour, and it was required to stop at a home block signal, the distance from the distant to the home signal being 2,900 feet; but the train could not be stopped at the home signal—it was stopped a few feet beyond by a large freight mogul—on account of the very low braking force on the train. Subsequent investigation of the brake force showed that the average braking force of the whole train was less than 30 per cent. of the entire weight of the train. And the running test of the brakes indicated that they would hold all right, but when wanted at the higher

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speed, they did not come up to the requirements.

In my opinion the running test of air brakes on passenger trains, where it is made soon after the train is under headway, and after a standing test has been made might be dispensed with with advantage to all concerned.

Many roads never use it.

J. P. KELLY.

Questions and Answers

Locomotive Running and Repairs.

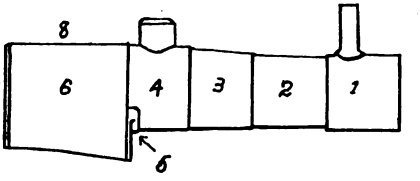
Answers by W. G. Wallace.

75. Disconnecting a Consolidated Engine.—"An engineer running a consolidated engine with eccentrics not on the same axle as the wheels with the main pin, broke the main pin on the left side. He disconnected the valve stem on that side and took down all the side rods on both sides, and succeeded in taking the engine 20 miles to the terminal. When the hostler took the engine to put her in the house she was further damaged. In your opinion did the engineer disconnect her properly, and should the engineer or hostler be held responsible for the consequential damage?—*O. G. B.*

Answer.—It is our opinion that the engine was not properly disconnected by the engineer. By taking down all the side rods it left the wheels and axle that controlled the valve gear for the admission and exhaust of steam to the cylinders independent of the position of the piston or the main wheels. The reason for taking down side rods on opposite sides is that if one side was on the quarter the other side would be on the center, and the wheel connected by one side rod only would be liable to break the pin or start to revolve in the opposite direction. But in this case, where the engine was only working steam on one side, if all the side rods on that side were left up, should she stop on the center she would have to be pinched or moved until all the pins were above or below the axle a sufficient distance to insure their revolving in the right direction. Therefore, there would be no danger from leaving the rods up on that side to come in. It looks to us that the engineer was not only in big luck to reach the terminal under the above conditions but put the company to additional expense and set a trap that caught the hostler.

76. Boiler Sheets.—"Will you kindly illustrate the outside sheets of a boiler and show which sheet is called the throat sheet?"—*G. O. F.*

In the illustration herewith, *1* represents the smokebox and extension front; *2* the first ring of the boiler; *3* the second ring, or slope sheet if on an incline forming a wagon top; *4* is the third ring or dome sheet. These parts form the barrel of the boiler. Sheet *5* is the sheet that connects the underside of the barrel of the boiler to the outside shell of the fire-



Illustrating Boiler Sheets

box and is usually termed the throat sheet; *6* is the outside sheet of the firebox; *7* is the back boiler sheet, or head, and *8* is the roof sheet. The firebox consists of a back sheet, flue sheet, two side sheets and a crown sheet. The front flue sheet is next to the smokebox. The lower edges of the inside and outside shells of the firebox are riveted to an iron ring called the "mud ring."

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The New York Air Brake.

Answers by J. P. Kelly.

141. Failure of Brake Valve to Cut Off in Service Application.—"When the New York engineer's brake valve fails to cut off in service application, where should I look for the trouble."—*F. J. M.*

Answer.—Look for leaky connections between the brake valve and the supplementary reservoir, a leaky back cap gasket, *167;* and, if you have a 1902 model brake valve, along the cover joint, on the side which has the excess pressure valve. These connections and joints are best tested by covering them with kerosene, when, if they leak slightly, little air bubbles will appear.

If no leaks are found at the connections, the joints, or the back cap gasket, then remove the back cap *102-A*, and examine piston *104* or *104-A*, as the case may be, for leaky packing leather *107*, or leaky ball check valve *184*.

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Any slight leak from the supplementary reservoir or any of its connections is likely to cause failure of the cut-off feature in service application.

142. Handling the Engineer's Brake Valve Without the Cut-Off Valve Working.—"If the New York engineer's brake valve will not cut off the train-pipe exhaust in service applications, how must I handle the valve to get the desired results?"—*F. J. M.*

Answer.—In case the valve does not cut off in service application, when you wish to close the train-pipe exhaust move the handle back to lap position yourself. If you are handling a 40 or 50-car train, this ought to be done rather slowly to guard against the possibility of releasing the tender or the driver brake.

On many switch engines the equalizing cut-off feature is purposely blocked, and the engineer controls the train-pipe reduction himself, thus securing a much quicker operation of the brake.

143. Operating New York Air Signal on Double-Headers.—"I would be greatly obliged if you would answer the following question through the columns of the Locomotive Fireman's Magazine:

"In the event of double-heading passenger trains, engines being equipped with New York Brake Company's air signal apparatus, is it customary to cut out air signal on second engine, and what is the practice usually followed?"—*R. G. P.*

Answer.—Unless the train is very long, it is not customary to cut out the air signal pressure reducing valves on the second engine, in cases of double-heading passenger trains.

Where the train consists of 15 or more cars, however, it has been found that results are more satisfactory, if the pressure reducing valve on the second engine is cut out, especially if the cars composing the train are unusually long.

The satisfactory operation of the air signal on very long trains depends largely on the way in which the pressure reducing valve operates, and it has been found necessary in some instances, where the trains consisted of 15 or more passenger cars, averaging 70 feet in length, to choke down the feed in the pressure reducing valve, so as not to destroy the wave effect in the signal pipe, or the discharge of air from the car discharge valve before it reaches, and operates, the signal valve, a thing which is likely to happen, due to the pressure reducing valve feeding in air to the signal pipe too rapidly.

It should be remembered that cutting out the signal pressure reducing valve on the second engine of a double-header does not cut the signal valve out on that engine.

144. Main Reservoir Capacity and Excess Pressure.—"Does the size of the main reservoir cut much figure with the time required to get the excess pressure after releasing brakes and placing the handle of the brake valve in the running position?"—*D. A. A.*

Answer.—Yes; the capacity, or volume, of the main reservoir does make a difference in the time required to obtain the "excess," the larger the main reservoir the longer the time required by the pump to pump up the excess pressure. And now that air braked trains are longer, and main reservoirs correspondingly larger, than formerly, it is worth while to devote some time to the study of the effect of main reservoir capacity on the operation of the air brake.

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Train Rules and Train Practice.

Answers by H. A. Dalby.

89. Not a Good Order.—"We are working under the Standard Code and receive Order No. 1, 'Engine 3 will run extra Raceland Junction to Schriever and will meet extra 198 east at Schriever.' After arriving at Schriever and waiting on siding for extra 198 (which did not arrive) I get Order No. 2, which read as follows: 'Engine 3 will run extra Schriever to Morgan City.' I claim I have no right to leave Schriever until I meet extra 198 as I was going west and both trains were of the same class, as east bound trains have right of track and Order No. 1 was not fulfilled.

"Mr. B. claims Order No. 1 expired by limitation and I was not supposed to look out for Engine 198. Who is right?—*J. G.*

Answer.—We have been asked a similar question before and have given it as our opinion that there is nothing in Order No. 2 which would require extra 3 to wait at Schriever for extra 198, though as a matter of safety we think the conductor and engineer should inquire as to the whereabouts of extra 198, lest some one had made a mistake, which is, of course, possible.

In the first place, Order No. 1, as held by extra 3, is not entirely proper, for it expires on their arrival at Schriever. There is no object in giving a train an order to meet another train at its destination. This order must have been put out for the benefit of extra 198, which probably had orders to run extra from Morgan City to Raceland Junction and, of course, could not run through the ter-

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ritory occupied by extra 3 without an order to meet them. Extra 198 did not concern extra 3 in the first order and should not, strictly speaking, appear in the order in this form.

We consider that extra 3, having arrived at Schriever, has fulfilled Order No. 1, and when Order No. 2 is received it creates a new train, so far as the matter of orders is concerned. The fact that extra 198 is east bound (the superior direction for trains of the same class) has no bearing on the question.

If we were running extra 3 and received Order No. 2 we should ask the dispatcher where extra 198 was, and if told that it was tied up or turned, or received other satisfactory reply, we should go ahead.

90. An Inconsistency.—"Please render an opinion in regard to the following train orders: No. 27 is a west bound train:

"'Order No. 2.—Extra 44 east will meet No. 27 at Niles.'

"'Order No. 3.—1st No. 27 will meet extra 44 east at Bowen instead of Niles.'

"Bowen is a station west of Niles. Can extra 44 east proceed to Niles after meeting 1st 27? Can 2d 27 proceed west from Niles or must it wait for extra 44 east?"—*H. L. T.*

Answer.—There is an inconsistency between the first order and the second in that the first order is to meet No. 27 (which indicates that there is but one section) and the second is to meet 1st 27. We think that whenever it is necessary to make a change of this kind the first order should be annulled so that there would be no chance of misunderstanding.

Inasmuch as the first order mentioned "No. 27," it is assumed that there was but one section when that order was sent and we have no means of knowing whether the second section (which was evidently a later arrangement) signed either the first order or the second. It would therefore be very unsafe for extra 44 to leave Bowen until all sections of No. 27 arrived, without further orders.

As for 2d 27, if they had signed both orders they might be justified in waiting at Niles for extra 44, inasmuch as "No. 27" in the first order would include all sections, and the second order changed the meeting point with the first section only.

It would seem, therefore, that an order of this kind would invite a misunderstanding with the possibility of serious results, and this leads us to emphasize what we have often said with regard to making orders plain and consistent with each other. In this case we think that either the first order should have been annulled or the second one should have included a meeting point for the second section as well as the first. It would have been preferable to annul the first order, as that would leave no possible room for subsequent complications.

91. Whistle Signals.—"Will you kindly advise why there is not a signal to give by steam whistle by the engineer when descending long grades for the brakeman to turn up retaining valves to hold train under control so engineer can recharge auxiliary reservoirs? I have never seen any rule to cover this and any information you can give on the subject will be highly appreciated."—*E. J. H.*

Answer.—We do not know of any road where such a rule is in force and if we correctly understand the situation described by our correspondent it only occurs on mountain roads where grades are long and it becomes necessary to recharge the auxiliary reservoirs while still holding the train under control. It is probable, therefore, that the makers of the Standard Code did not consider that a provision of this kind would be generally applicable, and it is the intention of the code, we believe, to confine itself to rules of this character. It is our impression that where this practice is common that engineer and trainmen have a sort of understanding as to when and where the retainers are to be turned up and how many.

We suggest that this would be a good subject for engine and trainmen to take up and formulate, if possible, a code of signals for this purpose. Perhaps some readers of the Magazine can give some information as to existing practices, if there are any.

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Steam and Air Line Connections.

MR. H. F. BALL: One of the things in which we are most interested is the diameter of steam train pipes. We are about to make a test at Collinwood to determine whether there will be any advantage in adopting the 2-inch pipe instead of the 1½-inch pipe which is the prevailing standard. In connection with this test we are also varying the diameter of the gaskets at couplings to see what effect this will have in furnishing steam for heating long trains. Under present conditions we have a great many delays at terminals during extremely cold weather on account of not being able to get steam through the train line. These delays are from 5 minutes to 20 minutes in duration. Another practice that would seem to be desirable to follow would be to equip all cars with end train pipe valves so that when a passenger train reaches a division terminal and the train is broken up, the steam could be handled in the same manner as the air; in other words, if the locomotive is left connected to the train, steam can be kept on the train. Whenever cuts are to be made, the end train valve would be used to hold the steam in the cars until the switching of the train is done. In this way considerable time would be saved. If the locomotive is to be cut off, steam would be kept on the train until it arrives in the station, and the end valves would be used in the same manner as described above. The tender should also be provided with an end train pipe valve.

MR. F. W. BRAZIER: Two winters ago we experienced a great deal of trouble on account of steam hose couplers parting on passenger equipment cars while in road service. Our conductors were instructed to report every case of uncoupling, and each case reported was followed up, and cars examined and measured. The result was somewhat surprising. We found some train line pipes out of position, short and badly kinked hose, short chains, bad gaskets and 45-degree elbow improperly turned. Trouble was found in using couplers of different makes, owing to foreign cars running over our line. Last winter, and so far this year, we have had practically no trouble whatever from steam hose uncoupling. This we consider is due to the fact that closer attention is being paid to the location of train line pipes, hose, couplers, etc., and train line pipe, wherever it can be done, is being carried one inch closer to center line of coupler than two years ago. The present standard is 9 inches.

On our "Lake Shore Limited" trains, where high pressure is used to heat trains and run dynamo engines, we have been using two lines of pipe; one for train heating purposes, the other line for dynamo engine. On the latter line metallic fittings are used, and at first, trouble was found to keep the couplers connected. It was decided to use a coupler with lock attachment, and this proved successful. There is one disadvantage, however, in using a lock coupler, and that is, in case train parts, train line pipe might be pulled out.

Cars equipped with end train pipe valves, having stem and wheel projecting alongside of step risers, are in such position that trainmen find difficulty in opening them when drawing out train line, while train is in motion; and, where such valves are used, a stem and wheel should be provided to run through platform end timber, so that valve can be operated from platform as well as from the ground and step risers.

A lock coupler is used on our Empire State Express trains this winter, and where formerly we had constant trouble, we have yet to receive the first complaint of uncoupling on these cars during the present season.

Most of you know that the Pullman cars and other foreign line cars have different standards for distance, varying from nine inches to sixteen inches from center of car. When cars are run around sharp curves and the train line pipe is so far from the center, the hose is raised and is almost uncoupled, and when the cars are run on to tangent again the hose will not drop, sometimes, owing to the steam pressure on the hose. Consequently there is a leakage of steam, or trouble with the hose becoming uncoupled. The committee of the Master Car Builders' Association expect to recommend, I am told, the adoption of a lock coupler for steam hose. During the past season we have used a lock coupler on the Empire State Express and have had much success with such coupler.

MR. MCINTOSH: The size of pipe is very important and we ought to use a

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larger size than has been used heretofore. In other words, a 2-inch pipe is as small as ought to be used for steam heating purposes, and it is our practice to use that on all new equipment, all new applications. My attention was called today to a Pullman car on our lines that was giving real trouble about heating. I forget just the number of pipe bends that were found on that car, but the number was very great, nearly a dozen of right-angle bends that the steam had to pass through in order to pass from one end of the car to the other, and it was almost impossible to heat the car with that combination. It is very important, in equipping cars, to have the pipe lines as direct as possible and the diameter of the pipe large enough to permit rapid circulation.

MR. WEST: I take the opposite stand in regard to that. Last year a company offered to heat our trains with the exhaust steam from the air pumps, which I did not believe could be accomplished, and they do it successfully. The gentleman who introduced the device called my attention to one fact which is a common practice, I believe, in heating passenger trains; that no matter if we had a 4-inch train pipe the full opening of the valves on the first car would be made, and he immediately began to teach our men that it was not necessary to turn the valve in the first car from the engine more than a quarter of a turn, and on the cars farther back in the train open the valves correspondingly more. In that way we had almost as much pressure at the rear coach as at the first. The past winter we have successfully heated in the coldest weather a combination mail and passenger car behind as many as twenty cars with a 1½-inch pipe.

MR. BRAZIER: In reply to the question asked by Mr. McIntosh, I inform you that we use 1½-inch pipe and 1¼-inch openings in the hose couplings.

PROF. HIBBARD: I hope that the statement of Mr. West will be realized in its importance. We know that the locomotive air pump is wasteful of steam and that we do not want that pump in our shops for pumping our shop air if we can buy an economical air compressor, but that it lasts on the locomotive and will last because it is so simple and so compact and so light. If Mr. West has found the way to take the steam from that wasteful air compressor and use it for heating trains, I think that the importance of that saving ought to be recognized in its fullest extent by the members of our Club. We have made use of that air pump exhaust for heating the water in our tender tanks to some extent in the past on some of our roads, but it appears that there is much more heat in the exhaust than can be utilized in heating water in our tender tanks. I think that it will be a very marked saving if we find that what he finds to be successful is successful on all our passenger trains, to use that otherwise wasted steam from the exhaust of the air pumps.

MR. WEST: I would like to say that since that device has been put on our locomotives, "live" steam has never been used to heat the coaches. I would not want the statement made that we were warming a coach behind the twenty-five cars with that device. I was speaking of a car heated behind twenty cars with a 1½-inch pipe.

MR. BRAZIER: We have a train equipped in the same way as Mr. West describes and the system has been very successful all this season.

MR. WHYTE: What is the back pressure on the pump, Mr. West?

MR. WEST: I do not know. The pump never has failed to do its work. We never attempt to carry over fifty to sixty pounds of steam pressure when we use the reducing valve, when we carry 180 pounds of pressure on the boiler. We have no difficulty in getting the air pump to do its work.

MR. WHYTE: It is not considered economical, however, to work with excessive back pressure either on a pump or a steam engine. If the steam is carried from the pump to the locomotive tank there will be the effect of the condenser which would probably tend to decrease the back pressure, but it hardly seems desirable to put at all times an excessive back pressure on the pump. I do not understand that all trains can be heated with exhaust from the air pumps, particularly if the air brake train pipes are kept tight so that there are not too many leaks of air to keep the pump running to maintain the air pressure. If the train pipe is tight and the train is making through runs and not many applications of the brake, there probably will not be enough exhaust from the pump to heat a train.

MR. WEST: The four men who run these two locomotives say that the locomotives never steamed as freely as since this device was put on. Results are what we are after, not theories. In these days results count.

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MR. MCINTOSH: I think that Mr. Whyte's condensing theory will work out all right in either case, as these train pipes are all steam trapped. I would infer that the exhaust passing back through the pipe would still be going into a condenser to a certain extent.

MR. C. E. TURNER: We have been using for the last two years the same arrangement which Mr. West has described. We have experienced no trouble from back pressure on our pumps, no increase of the expense of maintaining. As far as the heating of the train is concerned, whether it be on a hilly road or a level road, I know of my personal knowledge of a road, the heaviest grade of which is 15 feet to the mile, their trains run 40 miles without making a stop, and they are heating some of their trains in this way. The gentlemen that had the steam heat put on said: "We do not get exhaust enough from our air pump." The gentleman who represented this steam heating system said, "We have an arrangement which we can put on to give you the pulsations, or the beats, of the pump." "Oh, no," he says; "our pumps are all right." The heating arrangement was put on and was continued in use for two trips, and the engine came in and the heating man asked, "Now, how is the pump working?" "Why," said the railroad man, "I had not the remotest idea that, on a level road like we have, we would get so much exhaust steam." The train was a nine-car train and on a level road, running forty miles without making a stop. They had no trouble whatever in heating that train and they are using the heating arrangement now. I understand that they have ordered about fifteen or twenty equipments to be placed on their locomotives. I am not speaking in behalf of this heating arrangement. We are using it on five or six of our trains now and we are having no trouble with it whatever.

MR. WEST: I think that if anyone will ride behind one of our locomotives which is equipped as described and listen to the pop valve that is connected to the receiving reservoir and which allows steam to escape from the reservoir in case of an over-pressure, and find that pop open half the time, he would have some idea of the waste of the air pump. I have had no figures with regard to the maintenance of the air pump on these locomotives compared with those on other locomotives, but the engineers tell me that the air pumps are a great deal more reliable and that they do not pound nearly as badly as they did when the air pump was exhausting out into the atmosphere.

MR. A. O. BERRY: I think that the success of a device of this kind depends entirely on the class of service in which it is used. We have two locomotives equipped with a device for heating the train by means of the air pump exhaust. One of these locomotives is working in local service where there are 18 stops in a distance of 23 miles. The device is working very successfully in that service and has done so for the last two years. Even in the very coldest of weather, the number of stops and the number of applications of the brakes give exhaust steam enough to successfully heat the trains. We also have locomotives equipped with this device running in fast express service, and I find that in the very coldest of weather there is not exhaust steam enough to heat the trains sufficiently and steam from the boiler must be turned into the steam heat system in order to maintain a sufficiently high temperature in the cars.

MR. WEST: I ask Mr. Berry how many stops were made on this train in 150 miles?

MR. BERRY: Five.

MR. WEST: We have no trouble in heating trains with five stops in 150 miles.

PROF. HIBBARD: Mr. West, how many reductions in the air train line pressure would be made in 50 miles?

MR. WEST: I would not like to estimate the number.

MR. O'BRIEN: Mr. West, what is the pop valve set at in this reservoir? He says that a reservoir is provided into which the exhaust of the pump is conducted.

MR. WEST: Fifty pounds, I think.

MR. O'BRIEN: Then you have 50 pounds back pressure on the pump?

MR. WEST: Yes.

MR. O'BRIEN: Then you need more steam to work the pump?

MR. WEST: We have got 180 to 200 pounds all the time.

MR. O'BRIEN: Then you are virtually taking steam from the boiler to heat the train?

MR. WEST: I can not agree with Mr. O'Brien. We are certainly exhausting the steam down to atmospheric pressure, and any man who has undertaken to supply the air around a shop with the West-

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inghouse air pump knows what it means to operate an air pump.

MR. WHYTE: There is another thing about heating the train from the air pump: If the back pressure of the pump is 50 pounds, and the steam pressure on the boilers is 180 pounds, the effective pressure on the pump is 130 pounds. This 130 pounds steam pressure will not give 120 pounds, or 130 pounds, of air in the main reservoir, and these air pressures are required for the high speed brake.

MR. WEST: This discussion is foreign to the subject, but it was brought out in trying to demonstrate that a 1¼-inch pipe is large enough for the demands made upon it. I think that if we use a 2-inch train pipe we have got a larger area for condensation, we have got a larger surface exposed. No matter how well it is covered, there is more or less condensation in a train pipe, and if a 1¼-inch pipe is large enough, what is the use of putting in 2-inch pipes?—New York Railroad Club.

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Burning Oil Without Smoke.

MR. C. R. PETRIE: Replying to your letter of the 3d instant, advising that question No. 80 had been assigned to me fon an answer, and which reads as follows: "Are not all oil-burning locomotives supposed to consume their own smoke? and if so, what is the matter with those that do not? Which is the most suitable fuel for locomotives, having regard to the comfort and safety of passengers?"

Oil-burning locomotives are supposed to consume their own smoke, and if conditions are as they should be, they will. The conditions which give a smokeless oil-burning locomotive are so nicely balanced, however, that a very small margin is left to keep them in that condition.

The following are a few of the things we have found that have been the matter with them when they did not consume their own smoke: Slight leaks in top of flues or flue sheet; leak in top front corner of side sheets; leak in back mud ring, where draft takes the water into the oil; air leak into front end smoke arch; pump exhaust disconnected in front end; exhaust stand leaking; not receiving air enough through pan; sand or small particles of brick on the firing floor; trying to haul a ten-mile-per-hour tonnage at a twenty-mile gait; trying to evaporate more water in a given time than is possible with the size boiler, etc.

I believe oil is the most suitable fuel for locomotives, both in regard to comfort and safety of passengers.

MR. D. P. KELLOGG: All combustion,—wood, coal, or oil,—is *supposed* to be perfect; if perfect, then there would be no smoke. Unfortunately the locomotive engines, which burn more fuel than any other steam-using machinery, are the hardest to make perfect, for two principal reasons: First, They are required to generate more steam per square foot of heating surface than almost any other boiler. Second, The conditions are more variable than in any other steam-producing plant, and all variations must be neutralized to produce perfect combustion. Usually by the time this act is performed another arises.

In the first place, original design and construction are most important. We find that heat generated from fuel oil is harder to distribute than from coal. We project the oil under pressure into the fire-box toward the forward end, similar to throwing all coal ahead. Cold air is also admitted at this point, and we have but little if any heat in the lower back corner of the fire-box. To overcome this, it is essential, when possible, to lower the burner as much as possible, so that the return of the heat may act on this portion, as it must rise in returning.

We find by experience that we can only project the oil a certain distance against the counteracting influences of exhaust and rising heat, augmented by air admission under the flame. This limit seems to be about 6 feet 6 inches. It is essential that the oil strike the front wall, as it is white hot, and ignites and breaks up the larger particles of oil, which unfortunately the atomizer does not atomize. On the other hand, we have a limit, and if the projected oil strikes floor, side wall, or fallen brick, it cools and deposits, instead of breaking up and burning.

It seems to be essential to first place the burner as low as possible, then tip it slightly up at the point, so that it flows or rolls in a natural course. If the point is tipped down, the tendency under light working is to strike the forward wall, then down according to the law of deflection, it must strike the front wall, then floor, and cut the path of the ingoing oil, which produces smoke and poor combustion; so we aim to first get as low as possible, then the angles are always upward, assisted by natural laws and the exhaust.

It seems to be nearly as essential to

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admit the air over as large a surface as in burning coal, so that it may not deflect the flame and cool it at one point. If the construction is right, the handling and maintenance are just as important, and if properly handled there should be no smoke. But when there is absolutely no smoke, we are on the danger line in another direction, where the dropping of the lever or slipping of the engine will snuff out the fire, draw in cold air, and cause the flues to leak. In pulling out and getting under way, it is believed to be better practice to have a color of smoke than absolutely smokeless, to insure against this possibility, as many failures can be attributed to this cause.

In answering the latter part, concerning safety, from local observation it would seem that oil fuel is the less dangerous, as the fireman intuitively puts out the fire in case of collision or derailment. Within the year we have had a chance to observe the effect of oil burners in disasters, which did not catch fire, where it would seem an impossibility to place a coal burner and escape a conflagration.

MR. H. L. STEVENSON: Perfect oil-burning locomotives ought to consume nearly all their smoke. If perfect conditions could at all times be maintained, very little opportunity would be afforded for complaint against smoky oil burners, but the contrary is often found to be the case when conditions are not what they ought to be to insure perfect combustion, but contribute largely to defeat the efforts of enginemen in obtaining desirable and satisfactory results. These imperfect conditions referred to can not be properly charged to imperfect design or model of the brickwork or attachments of the firebox, which were originally in good form and in perfect condition, but now possibly need repairing. There may be slight leaking of tubes or stay bolts, which in itself may cause imperfect combustion, or the brickwork may need repairing, which in bad condition also contributes largely to poor consumption of fuel oil and excessive smoking of engines; but owing to circumstances over which roundhouse forces have no control, due to the necessities and demands of the traffic department and the scarcity of locomotives, this one in bad condition is forced into service again without receiving necessary attention and repairs, with what result can be easily conjectured without drawing on the imagination. The assignment of locomotives to service after being at a roundhouse from two to five hours after completing a trip is not at all imaginary, but of frequent occurrence, and it is often the case that engines can not be held long enough to have boilers washed out or necessary repairs to brickwork, often found to be in bad condition.

The inexperience of enginemen in the practice of fuel-oil consumption, or the improper manipulation of the firing apparatus, or neglect to keep the tubes clean and free from soot by frequent and thorough sanding, is often followed by excessive smoking of locomotives.

To the last section of the question, "Which is the most suitable fuel for locomotives, having regard to the comfort and safety of passengers?" There is scarcely any room for discussion on the point of comfort to passengers riding behind an oil-burning locomotive, who are not subjected to the annoying discomfort of constant showers of cinders, as is the case with a coal burner. Who has not at some time had the pleasurable experience of cinders in one or both eyes, causing inflammation therein, to say nothing of the anguish of mind or the inclination to say cuss words, mentally if not audibly, unless restrained by devout religious influences? Then, again, the delays incident to the necessary cleaning of coal fires and hoeing out of the ash pans of coal burners do not attend the operation of an oil burner, which also contributes to the comfort and pleasure of railway patrons. From a standpoint of safety, it can be stated without fear of successful contradiction that as many train wrecks have been consumed by fire when the locomotives attached were burning coal as has been the case when oil was used for fuel, although I have no statistics at hand to verify this assertion; yet instances can be pointed out where train wrecks have been consumed by fire when coal was the fuel used, while very serious wrecks, where oil was the fuel used, escaped ignition entirely. I will cast my vote in favor of crude mineral oil for locomotive fuel.—Pacific Railway Club.

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The Failures of Large Locomotives.

Evidence is accumulating which tends to show that the locomotive has grown too rapidly, and that, as now constructed, on many lines where it is employed, it is not well adapted to the service. If its record could be written up, showing the time it is out of service and the expense it has already caused for repairs, it would be appalling to conservative railroad managers and at least discouraging to the more progressive. The difficulty with leaky tubes on new engines with medium wide fire-boxes is quite general, and as the cause is not well understood, a certain remedy can not, therefore, be applied. Under such conditions the engine can not develop its full capacity, and it is under the disadvantage of being compelled to propel its own extra great dead weight with its tractive power lessened. The enginemen are demanding more wages for handling the big power, and the firemen complain that the amount of coal burned is so large that two firemen should be employed. The accumulation of condensed steam in large cylinders of compound engines, and the compression of gases demand numerous relief valves. These are constantly leaking and surrounding the front of engine with a cloud which must be annoying to the engineman and often dangerous on account of his inability to see the signals. This has been mentioned as one of the principal objections to the large compound engines which have been built in recent years.

These three conditions seriously affect the usefulness of the large engine when in service. The records show numerous breakages which throw it out of service completely. Some of these are due to faulty design and others to a want of proper adaptation to surrounding conditions. Cracked side sheets are now so frequent with wide fire-boxes on some roads as to amount to an epidemic, and they are as prominent a subject of boiler shop repairs as when steel sheets were first used, and so many theories were advanced to account for their failure. An examination of the cracked sheets shows the principal deterioration to be within a circle of about 3 feet diameter near the center of length of the side sheet and near the bottom. In this locality the sheet shows numerous cracks on the fire side extending vertically from one staybolt to another. When a piece of the steel from such a side sheet is pulled on a testing machine these cracks open up like splits in hard wood, and the same thing takes place when a piece is punched out. The cracks open up on the fire side of the punching. No satisfactory explanation of the cause of cracked fire sheets has been found, but some attribute it to a want of circulation, or to the foaming of alkali water causing overheating, and to the fact that, when hot, the sulphur from the coal forms with the steel a carbide of iron, from which cause is established a deterioration which is cumulative and finally results in long cracks, sometimes extending 2 feet vertically. One cause of these cracks may be the expansion and contraction over a large area tending to buckle the sheet. The sheets also crack between the fire doors. This is probably due in part to injuries to the sheet in flanging and also to the rigidity due to so much flanging in a comparatively small space.

The enormous force produced by large cylinders and high steam pressures has produced stresses in the frames which have searched out the weak points, and they, too, have broken in large numbers, both cast steel and forged frames. This is partly due to faulty design, to bad welds, to unsound castings and to shrinkage strains. Much of this trouble can be avoided by good workmanship, but the correct proportions in design are largely to be obtained by knowledge gained in experiences such as those now so frequent. Broken cylinders on large compound locomotives have been more frequent than is generally realized, and this has perhaps caused a greater expense for repairs and has kept the engine out of service longer than the other failures.

The failure of cylinders is attributed to several causes, one of them to the pressure of water in the cylinder, another to excessive compression of gases, one to the tendency of the overhanging mass of the barrel to break away from the saddle at the frames when the engine pounds on the track at frogs and low joints, another to overheating due to lack of lubrication when drifting. This lafter cause will be corrected by the use of an extra lubricator for the low-pressure cylinder. An illustration of the delay in repairing engines

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with the large compound cylinders broken is shown in the case of a road which, on account of the high price charged for a cylinder casting, made a pattern for the cylinder and then found that no foundry in the State or near by in any direction had facilities for making the casting. Another road, after securing a casting, found that it had no machine tools large enough to finish it. Quite a number of large engines have met with serious derailments when the track was unequal to the heavy wheel weights, but they have succeeded better on roads where track is well ballasted, where heavy rails are used, and where they are properly cared for and not sent far from the home shop. When forced into positions which are not adapted to it, the large locomotive has frequently proven a lamentable failure and a costly experiment.

The unforunate part of it is that the experiment has been made in some instances on so large a scale that many locomotives will require radical alterations before they will perform regular and efficient service. It would doubtless have been wiser to have built medium-sized locomotives for many Western roads where there are thousands of miles of poor track, where the water is bad and the roundhouse work rough and careless, and to have experimented with a few of the large locomotives until their construction had been gradually modified so as to make them better adapted to their environment. While the large engine when at work has shown a lower cost per ton mile than the smaller engines used five or ten years ago, it has not been shown that the total earnings for a year for very large locomotives on Western roads have been larger than those from a medium-sized engine which has been gradually developed on the road where it is used, and one which could be kept in service months at a time without any extraordinary repairs.

It should not be understood that we believe that the large locomotive is wrong in principle, but we have endeavored to show that its growth has been too fast and its proportions and construction have not been developed symmetrically. As an engineering matter, stationary engine and locomotive design are quite different. If it is desired to increase the size of a power plant 50 per cent. it is only necessary first to increase the number of units of boilers by that amount, and as it is certain that the original units worked successfully, there can be no doubt about the larger plant. The stationary engine is separate from the boiler and is not complicated by the requirements of boiler attachments and by track conditions which determine the number and arrangement of wheels. Its proportions are largely the subject of exact calculation and the designs for larger power can be made with confidence in their complete success. This is true of locomotive design only to a limited extent. When it is desired to increase locomotive power 50 per cent. there are quite a number of elements which are necessarily matters of experiment rather than calculation, and their success or failure is only assured by extended experience.

The lesson to be learned from the failure of heavy locomotives in such large numbers is that these machines can not be constructed with certainty of success by our best builders, with their magnificent shops and skillful designers, and that they must be developed gradually by a process of continued improvement, due to the knowledge gained by their various failures in detail in service. All this requires time and a longer time than has been given to the development of the very large locomotive.—Railway Age.

* * *

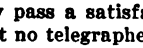
Telegraphers Should be Licensed.

The subject of licensing railroad telegraphers engaged in handling messages and train orders effecting the movement of trains, is a subject not only of vital interest to the telegraph profession, but to the general public. It is a subject that has received spasmodic consideration for a number of years, but one that is only brought up when some glaring accident occurs through the incompetency of a telegrapher. The horrible accident that recently occurred on one of the large railway systems in Canada wherein twenty-eight lives were lost and many score of persons injured, has again brought the subject prominently before the general public, not only of the Dominion of Canada, but of the United States, and all the leading newspapers are devoting columns of space to the question of devising plans for insuring more safety to the public while traveling on the railways. The coroner's jury which investigated the wreck on the Canadian line was unable to fix the responsibility as between the dispatcher and an operator, to whom it was claimed a train order was given, but which was not delivered on account of the operator claiming that he had been instructed by the dispatcher previous to the arrival of the train to "bust it."

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By way of diversion it might be appropriate to call the attention of all railroad telegraphers to the fact that after a train order has once been given and it has been repeated and O. K. given, no telegrapher should ever allow a dispatcher to induce him to "bust it," as the only proper way that an order can be annulled after once put out is by the sending of another order annulling the previous one, and this should always be insisted upon.

Among other things developed by the coroner's jury was the fact that there was a station between the point where the order was supposed to have been put out and the place where the wreck occurred, at which the dispatcher could have put out another order and prevented the catastrophe, which station was a night telegraph office and which point the dispatcher used every means to communicate with, but unfortunately this point was manned by a young boy only 16 years old, and the particular night on which the wreck occurred was his first night in the office, and his statement before the coroner's jury shows that he did not even recognize his office call which was so industriously used by the train dispatcher in an endeavor to prevent the wreck; therefore, it can at least be asserted that had a competent telegrapher been employed at the intermediate point instead of an incompetent boy, who failed to recognize his own office call, the wreck by which twenty-eight lives were lost and over forty people injured would have been prevented. This naturally brings up the question of how to prevent the railroad corporations from employing incompetent telegraphers and thereby endangering the lives of the traveling public. In the opinion of the Editor this can only be accomplished by legislation and the enactment of laws preventing the railroad corporations from employing any but competent telegraphers, and in order to determine the competency of the telegrapher, of course, it is necessary to provide for some form of standard examination and the issuance of certificates. This is a matter that would properly come under State regulation, therefore it would seem that the proper way to regulate this evil is to provide in each State by legislation for a State Examining Board, which Board shall examine all railroad telegraphers and issue to each of them a certificate of competency, providing they pass a satisfactory examination, and that no telegrapher shall be employed in the State who does not hold such a certificate.—Railroad Telegrapher.



Engineer Wisker Not Guilty.

The trial of Engineer Wisker for manslaughter for his part in the famous tunnel collision on the New York Central Railroad, has resulted in his acquittal, and as to the propriety of this verdict we think most fair-minded people will agree. The fact that other engineers have made thousands of trips with trains through this tunnel in safety does, of course, prove that it can be done by means of extreme care and watchfulness, but it does not prove that the conditions are all that they should be for the safe running of trains, and though it seems to be the fact that Engineer Wisker was not the most efficient possible man to be in charge of a locomotive, yet it is doubtful if a man can or should be held legally responsible for lack of personal efficiency. If he is trusted with responsibility by those who have the power to impose responsibilities it is questionable if he is under obligation to decline those responsibilities on account of his own consciousness of unfitness for them, and where an engineer places himself at the head of a train he certainly takes at least as much risk as any passenger in that train, and it is to be assumed that he will have a care for the safety of a train under conditions where, if an accident occurs, his own life will be more likely to be forfeited than that of any other. It would seem that such an assumption of risk is all that society ought to require of a locomotive engineer. The conditions of the tunnel in which the accident happened were caused by a desire to economize, to save money and to pay big dividends. All these conditions could have been avoided by the expenditure of money and those who were responsible for this failure to spend money for that purpose are being made to suffer by means of damage suits in which some record breaking awards have been made. We hope such awards will continue to be made and that the lesson in false economy will be as thoroughly taught as possible.—American Machinist.



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Enginemen's Course in Arithmetic

By W. S. Carter

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Mensuration

143.—A Cylinder is a solid that has a uniform convex lateral surface, and two bases that are circles in form and of equal dimensions.

NOTE.—In higher geometry any solid bounded by a uniform convex surface, irrespective of equality of bases, is called a cylinder, and a cylinder as defined above is known as a "circular cylinder" or a "cylinder of revolution."

(Figs. 44, 45 and 46 are cylinders)

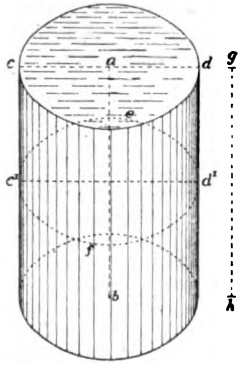


FIG. 44.

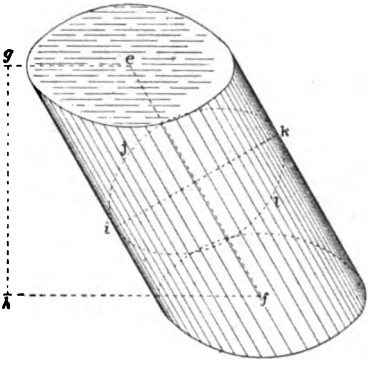


FIG. 45.

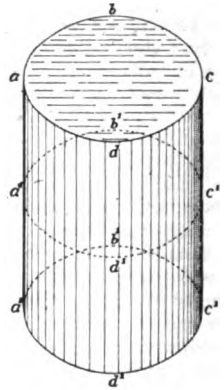


FIG. 46

A *Right Cylinder* is one whose lateral convex surface is perpendicular to its bases.

(Figs. 44 and 46 are right cylinders)

An *Oblique Cylinder* is one whose lateral convex surface is not perpendicular to its bases.

(Fig. 45 is an oblique cylinder.)

A *Convex Surface* is a curved surface like that of a cylinder or a ball.

(In Figs. 44, 45 and 46 all of the perpendicular or lateral surfaces are convex surfaces. In Fig 51 the lateral surface *a c b* is a convex surface.)

A *Concave Surface* is a curved surface like that of the interior of a cylinder.

(In Fig. 51 the lateral surface *a d b* is a concave surface.)

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The *Axis* of a cylinder is a straight line passing through the cylinder and terminating at the centers of the two bases. All points on the convex surface of a cylinder are equally distant from the axis.

(In Fig. 44 the line *a b* is the axis of the cylinder, and in Fig. 45 the line *e f* is the axis.)

The *Altitude* of a cylinder is the perpendicular distance between the two bases.

(In Fig. 44 *a b* is the altitude, and in Fig. 45 *g h* is the altitude.)

The *Diameter* of a cylinder is a straight line perpendicular to and passing through the axis, and terminating at both ends at the convex surface.

(In Fig. 44 *c d* and c^1 d^1 are diameters of the cylinder, and in Fig. 45 *i k* is a diameter.)

The *Circumference* of a cylinder is the circumference of any plane that is perpendicular to its axis.

(In Fig. 46 *a b c d*, a^1 b^1 c^1 d^1 and a^2 b^2 c^2 d^2 are circumferences of the cylinder. In Fig. 45 *i j k l* is the circumference of the cylinder.)

A *Lune* or *Crescent* is a plane bounded by two arcs of a circle.

(In Fig. 51 is shown a portion of a cylinder whose cross-section *a c b d* is a lune.)

144.—Propositions Relating to Cylinders.

Prop. XXXVI.—The area of the convex surface of a cylinder is equal to the circumference, multiplied by the length of the axis.

In Fig. 44 suppose the axis *a b* to be 10 ft. and the circumference c^1 *e* d^1 *f* 20 ft. Then the axis (10 ft.) × the circumference (20 ft.) = 200 sq. ft., which is the area of the convex surface of the cylinder.

Prop. XXXVII.—The volume of a cylinder is equal to the area of the circular plane perpendicular to its axis, multiplied by the length of the axis.

In Fig. 45 suppose the axis *e f* to be 18 in. and the area of the circular plane *i j k l* to be 96 sq. in. Then the axis (18 in.) × the area of the circular plane (96 sq. in.) = 1,728 cu. in., which is the volume of the cylinder.

NOTE.—In Fig. 47 the cylinder is truncated by the plane *e f g h*, which is not perpendicular to its axis, leaving a frustum, but the axis *j k* of the frustum, being in the center, is the *average* distance between the two bases, therefore, Props. XXXVI and XXXVII apply to frustums of a cylinder.

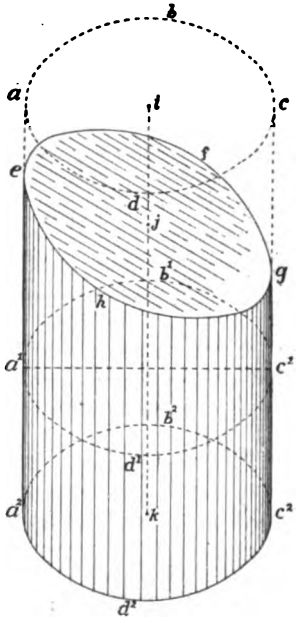


FIG. 47.

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Prop. XXXVIII.—The volume of a segment of a cylinder is equal to the area of the segment, of the circular plane perpendicular to its axis, multiplied by the length of the axis.

In Fig. 48 suppose the area of the segment *a b c* to be 10 sq. in. and the axis *d e* to be 100 in. Then the area of the segment *a b c* (10 sq. in.) × the axis (100 in.) = 1,000 cu. in.

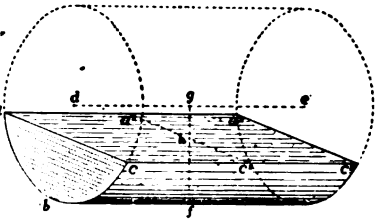


FIG. 48.

Prop. XXXIX.—The area of a lune is equal to the difference between the areas of the segments of the two circles whose arcs form the lune, and which arcs have a common chord.

In Fig. 49 suppose the lune *a b c d* and its component circles, etc., have the following dimensions: Radius *g c* and *g a* of larger circle = 77 in.; radius *f c* and *f a* of smaller circle = 52 in.; chord *a c* = 102 in.; perpendicular *e f* = 10.1 in.; perpendicular *e g* = 57.7 in.; angle *a g c* = 83°; angle *a f c* = 162°.

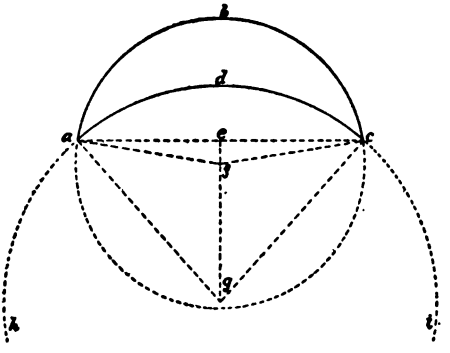


FIG. 49

The diameter of the circle *h a d c i* = the radius *g c* (77 in.) × 2 = 154 in. The area of the circle *h a d c i* = the square of the diameter ($154^2 = 23.716$) × .7854 = 18,626.5464 sq. in. The sector *a d c g* is measured by the angle *a g c* (83°); therefore, the area of the sector *a d c g* = $\frac{83}{360}$ of the area of the circle (18,626.5464 sq. in.) which = 4,294.4537 sq. in. The area of the triangle *a c g* = the base *a c* (102 in.) × half the altitude *e g* (28.85 in.) = 2,942.7 sq. in. The area of the segment *a d c e* = the area of the sector *a d c g* (4,294.4537 sq. in.) — the area of the triangle *a c g* (2,942.7 sq. in.) = 1,351.7537 sq. in.

In the same manner we find the area of the segment *a b c e:* Radius of smaller circle *f c* (52 in.) × 2 = diameter of smaller circle (104 in.). The area of smaller circle = square of diameter ($104^2 = 10,816$) × .7854 = 8,494.8864 sq. in. The sector *a b c f* is measured by the angle *a f c* (162°), therefore, the sector *a b c f* = $\frac{162}{360}$ of the area of the circle (8,494.8864 sq. in.) or 3,822.6988 sq. in. The area of the triangle *a c f* = the base *a c* (102 in.) × half the altitude *e f* (5.05 in.) = 515.1 sq. in. The area of the segment *a b c e* = the area of the sector *a b c f* (3,822.6988 sq. in.) — the area of the triangle *a c f* (515.1 sq. in.) = 3,307.5988 sq. in.

We have now found the areas of the segments *a d c e* and *a b c e*. The area of the lune *a b c d* = the area of the segment *a b c e* (3,307.5988 sq. in.) — the area of the segment *a d c e* (1,351.7537 sq. in.) = 1,955.8451 sq. in.

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145.—Problems Involving Areas and Volumes of Cylinders.

Prob. 39.—Suppose Fig. 44 to be a cylinder of the following dimensions: The axis $a\ b = 240$ in.; the circumference $c^1\ e\ d^1\ f = 500$ in.; what is the area of the convex surface of the cylinder? *Ans.* 120,000 sq. in.

From Prop XXXVI. The circumference (500 in.) $\times$ the axis (240 in.) = 120,000 sq in., which is the area of the convex surface of the cylinder.

Prob. 40.—Suppose a cylindrical steel water tank has the following dimensions: Diameter 20 ft.; depth 30 ft.; number of transverse lap joints 3; number of longitudinal lap joints 1; amount of lap in each joint 3 in.; weight of sheet steel per square foot 10 lb.; weight of rivets used in construction of tank 84 lb.; weight of interior brace rods 162 lb.; what is the total weight of the steel water tank? *Ans.* 22,966.978648 lb.

From Prop. XXXVI. The axis of the cylinder, or depth of the tank (30 ft.) + the two lap joints between the convex sheets (3 in. $\times$ 2 = 6 in.) = 30 ft. 6 in., or 366 in., which is the vertical extent of the convex sheets. The diameter of the tank (20 ft.) $\times$ 3.1416 = 62.832 ft., or 753.984 in., which is the circumference of the tank. The longitudinal lap joint adds 3 in. to this circumference, which makes 756.984 in.

The longitudinal extent of the convex sheets has been shown to be 366 in., which multiplied by the circumference + the longitudinal lap joint of 3 in. (756.984 in.) = 277,056.144 sq. in., which is the area of the steel in the convex sheets.

The diameter of the bottom of the tank (20 ft.) + the turned-up transverse lap joint (3 in. $\times$ 2 = 6 in.) = 20 ft. 6 in., or 246 in., which is the diameter of the bottom sheet. The square of the diameter of the bottom sheet ($246^2 = 60.516$) $\times$.7854 = 47,529.2664 sq. in, which is the area of the steel in the bottom sheet of the water tank.

The weight of the sheet steel per square foot (10 lb.) ÷ the number of square inches in a square foot (144) = .07 lb. (nearly), which is the weight of 1 sq. in. of the sheet steel

From the foregoing we have:

ITEM	Area in sq. in.	Weight per sq. in.	Weight of item.
Area of convex surface	277,056.144	.07 lb.	19,393.93 lb.
Area of bottom	47,529.2664	.07 lb.	3,327.048648 lb.
Rivets			48 lb.
Interior brace rods			162 lb.
Total weight of steel water tank			22,966.978648 lb.

Prob. 41.—If the water tank described in Prob. 40 was half full of water, considering that 231 cu. in. = 1 gal., how many gallons of water would be in the tank, making no allowance for the water displaced by the interior brace rods? *Ans.* 35,251.2 gal.

From Prop. XXXVII. The depth of the water, or axis of the cylinder of water, is one-half the total depth of the tank (30 ft. ÷ 2 = 15 ft.), or 180 in. The diameter of the

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cylinder of water is 20 ft., or 240 in. The square of the diameter ($240^2 = 57.600$) $\times$.7854 = 45,239.04 sq. in., which is the area of the surface of the water. The area of the surface of the water, or the area of the cross-section of the cylinder of water (45,239.04 sq. in.) $\times$ the depth of the water, or axis of the cylinder of water (180 in.) = 8,143,027.2 cu. in., which is the volume of the cylinder of water. The volume of water in cubic inches (8,143,027.2) $\div$ the number of cubic inches in 1 gal. (231) = 35,251.2 gal., which is the number of gallons of water in the tank.

Prob. 42.—If a cylindrical oil tank has the following interior dimensions: Length = 38 ft.; diameter = 6 ft.; how many gallons of oil will it hold?

Ans. 8,037.2736 gal.

From Prop. XXXVII. The area of a cross-section, or of a circumference, of the oil tank is the square of the diameter ($6^2 = 36$) $\times$.7854 = 28.2744 sq. ft. The area of the cross-section (28.2744 sq. ft.) $\times$ the length of the tank 38 ft.) = 1,074.4272 cu. ft., which is the capacity of the oil tank, or volume of the cylinder in cubic feet, which multiplied by the number of cubic inches in a cubic foot (1,728) = 1,856,610.2016 cu. in. This divided by the number of cubic inches in 1 gal. (231) = 8,037.2736 gal., which is the number of gallons the tank will hold.

Prob. 43.—If in the oil tank described in Prob. 42 it was found that the depth of the oil at the center, or deepest part, was only 28 in., and the tank was perfectly level so that this depth was the same the entire length of the tank, how many gallons of oil would there be in the tank?

Ans. 2,825 gal. (nearly).

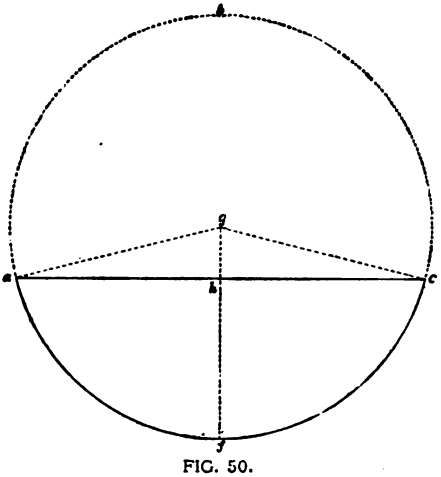


FIG. 50.

The form of the body of oil in the tank would be similar to the segment of the cylinder shown in Fig. 48. In Fig. 50 *a c f* shows a cross-section of the body of oil, the following being the dimensions: *h f* = 28 in.; *g h* = 8 in.; *a c* = 72 in.; the angle *a g c* = 152°.

From Prop. XXVII. (March, 1903, Magazine.) The diameter of the circle = 72 in., and the square of the diameter ($72^2 = 5,184$) $\times$.7854 = 4,071.5136 sq. in., which is the area of the entire circle. The number of degrees given for that part of the circle included in the sector *a g c f* is 152, therefore, the area of the sector *a g c f* = $\frac{152}{360}$ of the area of the entire circle (4,071.5136 sq. in.), or 1,719.08352 sq. in. The base *a c* of the triangle *a g c* (72 in.) $\times$ one-half the altitude *g h* (4 in.) = 288 sq. in., which is the area of the triangle *a g c*. The area of the sector *a g c f* (1,719.08352 sq. in.) — the area of the triangle *a g c* (288 sq. in.) = 1,431.08352 sq. in., which is the area of the segment of the circle, or cross-section of the body of oil *a c f*.

The area of the cross-section of the body of oil (1,431.08352) $\times$ the length of the oil tank (456 in.) = 652,574.08512 cu. in.), which is the volume of oil in the tank. The volume of oil (652,574.08512 cu. in.) $\div$ the number of cubic inches in 1 gal. (231) = 2,825 gal. (nearly), which is the number of gallons of oil in the tank.

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NOTE.—If the tank was more than half full of oil it would be necessary to find the volume of the upper, or empty space, and then subtract that volume from the volume or capacity of the entire tank.

Prob. 44.—If Fig. 51 was a truck brass whose cross-section *a c b d* had an area of 16 sq. in., and whose length of bearing *a e* was 8 in., how many cubic inches of metal would it contain?

Ans. 128 cu. in.

From Props. XXVII and XXXIX. The method of finding the area of a lune, or the cross-section of Fig. 51 is explained in the demonstration.

From Prop. XXXVIII. The area of the cross-section (16 sq. in.) × by the length of the axis (8 in.) = 128 cu. in., which is the volume of the truck brass.

NOTE.—In practice mechanics have access to reference books wherein areas of segments, etc., are found, and by which many complex problems are avoided and much time is saved.

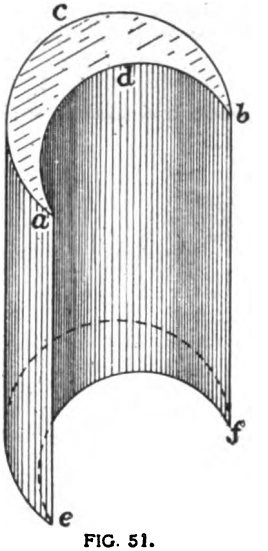


FIG. 51.

"Down Aroun' the Depo' When the Keers Cum In"

Down aroun' the depo' when the keers cum in,
What a hustle an' a bustle an' a clatter an' a din,
Engine kinder puffin', an' a blowin' off its steam,
Drayman sorter fussin' an' a cussin' at his team,
Boy a sellin' papers an' a shoutin' out the news,
'Nother one a wantin' fer to blacken up yer shoes,
Ain't like any other place 'at I have ever bin,
Down aroun' the depo' when the keers cum in.

Down aroun' the depo' when the keers cum in,
People there a-meetin' an' a-greetin' of their kin,
Some are disappointed like an' lookin' kinder glum,
Some a-sorter wishin' their relation hadn't cum,
The joyful, the sorrowful, the sober an' the gay,
Lot o' folks 'at's bin away an' gettin' back agin,
Down aroun' the depo' when the keers cum in.

Down aroun' the depo' when the keers cum in,
Folks 'at never crack a smile an' sum 'at allus grin,
Settin' there a-waitin' fer to hear the whistle blow,
Some a-wishin' they could stay, an' some 'at they could go;
A woman dressed in mournin'; 'nother as a bride,
A banker an' a beggar a-settin' side by side,
Some 'at never loses an' a lot 'at never win,
Down aroun' the depo' when the keers cum in.

Down aroun' the depo' when the keers cum in,
Ever stir a lot of ants an' see 'em all begin,
A-runnin' here an' ever'whèr' 'sif they didn't know
Which way they thought they orter or hadn't orter go?
Well, that's the way with people, fer purt nigh every day,
I go down there an' see 'em a-doin' that away;
Ain't like any other place 'at I have ever bin,
Down aroun' the depo' when the keers cum in.

—Anon.

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How Jim Met Bill

By Charles D. Stewart

A SPIKE driven in peace prevents a bullet in war—and no country has learned at so great a cost in blood as ours. Transportation, its greatest work, is to mix men and ideas and make homogeneous a people of opposed habits of life and thought and kill the hatred of ignorance. After our great war it was our great remedy—and how we hastened to it. There had been the slaughter of the North and South—and on the Pacific coast there had begun to grow what would naturally be a government of itself. The soldiers had hardly been disbanded before they were set to a similar task—having achieved peace, they were now to perpetuate it.

With resources depleted by the greatest of wars we took up the greatest of works, the spanning of the continent. Even with our hardy soldiers the task seemed impossible. The solution was the Chinaman—the man above all others who had never consented to leave home or entertain the stranger—a pretty solution of the transportation problem, indeed!

But we took a yellow horde from behind the barrier walls of China and set them to breaking down the barriers of a continent. While the Celestial patiently worked eastward with pick and powder, the speedy white man took up the task at the other end and sped to meet him over treeless plains. On the Chinaman's end it was dig and bore on slippery slopes and dizzy heights—at the other end the white men rushing a streak of iron across the plain. What a race!—so it has always struck me as being a race, with war in the final outcome. And at times it was actually a race of pride between the heathen and the white man.

Twenty-one millions of times they swung the sledge before they reached the goal, where the boys in blue first saw the yellow man.

The East and West were linked with a hieroglyph stranger than the Chinaman ever wrote. It was writ in the whitened bones of men and oxen—and across the bleached skeletons were yokes strung upon chains that would serve to move a house. What hieroglyph has told such a tale as this? Now we go to California in our sleep. This is a story of one who drove spikes.

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Eighteen months after the Central Pacific started east, a space of time in which the patient Celestials had no more than reached the heart of their task, a man in the dress of a Union soldier arrived at Omaha. Here were 18,000 other men, mostly soldiers like himself, and 3,000 newly arrived teams. The teams had been hauling supplies—the white man was about to start to meet the Chinaman. This soldier was a big beardless youth, blue-eyed and bronzed. He walked down the river bank to where there were monstrous iron tubes 70 feet in length and 8 feet in diameter. These were the caissons ready to start the big bridge. He examined them critically.

While he patted one of them with his hand a comrade nudged him in the ribs and said, "Well, Jim, I see you are still thinking of light artillery. How does this tube size up with your old pet of the Forty-second?"

"Hello, Abe, let's sit down and have a smoke." He seated himself in the shady mouth of the caisson and the older man sat beside him.

"Jim," said the elder, "you're a foolish boy. Take my advice and go back to Ohio."

"Four dollars a day is going to be better than what you and I have been working at. I will have something to help along the old folks. I'm the only one they have to depend upon, excepting Brother Bill—and he isn't to be counted."

"Brother Bill," exclaimed the other, "Why, I didn't know you had a brother—what regiment was he in?"

"Regiment!—not any. Why I don't suppose he heard of the war till it was half over. He went to California when I was knee-high to a grasshopper—by the overland trail."

"Then you wouldn't know him if you saw him."

"Guess not—but mother would."

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"Maybe Bill will come back before long with a railroad ticket in his hat."

"I hope so. Mother's one desire is that some day before she dies she may be able to see Bill again. That's why I am interested in the railroad."

The old soldier knocked his pipe against the caisson and the two arose. The younger one picked up a sledge hammer and began swinging it around in an experimental way. The elder man placed his hand on the swinging right shoulder and felt the working of the muscles.

"Well, boy," he said, "do you think you can keep that chunk of iron circling about your head for about five years?"

The young artilleryman stopped swinging and worked the shoulder up and down to show its size and freedom.

"It's a pretty good one," said the old Yankee, "but it's going to be a bigger one before you've swung from here to the Rockies."

Day after day the teams had come and gone, solving a problem the like of which will never have to be solved again—a problem to think about. To start from a place that is not connected by railroad with any other place and the material to be obtained by ransacking six States and territories—to look forward where there is but one tree in a thousand miles, and then the plain again, and here construct a work with 2,650 ties and 600 tons of rails to every mile and fifty bridges altogether—to begin this work with a bridge of which a few temporary tubes alone weigh 2,500 tons—and nothing to start with. The solution—horses and oxen. Moreover, to bring locomotives. The oxen brought these, too, and set them down to take up the task of carrying the burdens farther. Other works have been done by means of great facilities, so that we have ceased to wonder—but no such work with beginnings so elementary.

Chicago is building the $2,000,000 bridge and the fifty other bridges, and has started the railroad to Omaha. They will not wait for that; they will go on and build temporary bridges. Waiting is not their style. The men are parceled out; some are to keep the road graded fifty miles ahead, others are to lay the sleepers and some to swing the sledge. Here is to be a race the like of which had never been seen; the one kind of enterprise that combines with stupendous size, the rushing touch-and-go spirit of the American nature. The grade has been started and the sledgemen stand.

* * * * * * * * * * *

"Ready there! Out with them rails and stand to with the sledges!"

"Thumpity-thump, thumpity-thump, four-rails-from-the-car, ten-spikes-fo-the-rail, three-blows-to-the-spike, swing-boys, swing-boys, thump-thump-thump."

Four rails; eight rails; and after a while the cars move up. Four miles and it is sunset. Again, day after day, the road behind grows busier as they work. They span horizons as straight as a street, and for 500 miles there is not a crook or bend, and not a city on the line. But at regular intervals are piles of tin cans where yesterday was high-priced real estate. Here were pharmacies, stores and saloons patched together of canvas and boards, standing on lots that cost $1,500 and $2,000. In one of them was a real estate expenditure of $30,000. Where are the citizens and the honorables of the town? They have rushed ahead with their precious boards and canvas and their stock in trade of whisky, gaming tables and abandoned women. Thirty miles ahead they have elected their sheriff and appointed their "honorables"—cut-throats and desperadoes, all of them; convicts that the war turned loose. The honorables have founded a score of cities, and outsiders must not accuse their citizens of wrongdoing. The outsiders are coming—1,800 men at four dollars a day. Careless Kate and Jane and Whiskey Bill are waiting for them; they sit in the doorways and watch with eager eyes. Careless Kate jumps up and waves her hand. Ah! Here they come. Nearer and nearer; "thumpity-thump, thumpity-thump, swing-boys, swing-boys; come on to Whiskey Bill."

Yes, they come, and with each man there comes a revolver. And somewhere in charge of somebody of the vigilance committee there is a chosen rope. And they carry with them the lone peculiar tree that disappears and "bears its fruit at night." Tomorrow a man is drugged and robbed. The next night the three daily papers come from the presses on the cars and there is a pleasant paragraph referring to the fact that somebody has "gone from our midst." The next night, possibly, the tree springs up again and its fruit is picked before breakfast. One night it bore twelvefold.

"What has become of Whiskey Bill?" says Abe to Jim.

"I hear he broke his neck climbing a tree."

This was the usual reply.

They came to the Rockies. The ad-

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vance guard went ahead and blew a breach in the breastworks. On they went with their tents and cooking utensils. The men were soldiers who knew the life of the field. One day they did their best to break the Chinaman's record and made eleven miles. They beat him a mile!

* * * * * * * * * *

Eight thousand Chinamen with pick and shovel and nitroglycerin started to work—one day in 1863. Governor Stanford, of California, gave the word and on the anniversary of the battle of New Orleans the great work began. On the mountain side a thousand men swung a thousand axes in places where men and axes had never been before. There was a ringing and crashing and a reaping of trees. There was a roaring of twenty-five sawmills—the harvest being threshed. The mountains groaned and began to bring forth a railroad.

Besides these were 4,000 other men at their various labors. Oxen strained down the mountain side with wood and stone. They brought 25,000 feet of lumber daily, keeping the Chinamen supplied with 100 miles of ties in advance. Sailors began flanking the continents with supplies for the campaign. From the Eastern States around Patagonia it comes; 19,000 miles; and down goes the iron, hundreds of tons daily.

What a trick on nature! Up the Sierras the railroad creeps; the men who built the wondrous wall blasting and boring. Anon they come to a place where even nitroglycerin can not conquer. Here you see the iron wind about the mountain like a snake and move off craftily on the backbone of another mountain. Now they start out through the very air on giddy stilts planted in angry streams. Behind them the white man's firesteed comes and goes on the way they have prepared—bringing wood and iron. Now the Chinaman has to get a foothold on the very mountain side, and while they blast, the locomotive waits. Next week, or possibly tomorrow, they venture on the untried way with other wood and iron. Below the new-made trestles, rivers are dwindled to rippling brooks. They start to bore, and day after day the bowels of the mountain rumble with the turmoil of pick and shovel. At noon, when the yellow man sits to rest, the tunnel gives forth the sing-song gossip of another hemisphere. Of tunnels they bore fifteen.

Presently, as they emerge from the tunnel at Donner Lake, they come to daylight with a mighty blast and see the smiling water a thousand feet below. The white men point and tell the story:

"Here is where thirty white men ate fifty white men—for when they were snowed in at that place there were eighty of them. Yes, and some were women. Here a woman ate her own husband. Here a girl made a soup of her lover's head. It was here the young Spaniard confessed he 'ate baby raw, stewed some of Jake and roasted his head.' Yes, it is all true, John. Here is where they went from hut to hut and borrowed flesh on credit, to be returned when more of the borrower's family died."

"And will these white men fight in wars and die willingly for others?"

"Yes, John, most of them. But these men became depraved so that one of them when he was at last supplied with food left it and committed murder to get more. Strange white men?—not like Chinamen, you say? Don't know, John."

That night they sit in shelter and talk Chinese, for it is at sunset when the men are in shelter that the thunderous things happen which change the mountain of tomorrow. A workman crawls out and touches off a fuse. The mountain side is startled from its place and goes down and down with thunderous roar. The white man is having his revenge. The word is echoed on from peak to peak.

Now giant trees sawed in full round lengths are set up bodily mile on mile like ranks of soldiers. On these the snowshed will shoulder the avalanche and forever it will hold above the sleeping traveler's head the thirty feet of snow. There will be no more man eating man.

On and on, until at last the rocks are labored through, and they come to the solitudes of alkali. Here the locomotive will screech and hasten faster to the land of God. And they, too, laid the rails faster, for here in one day they put down 10 miles.

This was how the yellow man did it.

* * * * * * * * * *

One day in May the white man and yellow man saw each other coming. On the 10th of May, 1869, about six years after the yellow man started, trains from the East and West stood facing each other with a rod of bare ground between. They were covered with flags. On a pole was a flag that stood for a united country. Never did it have more meaning. It was to be a time of solemn ceremony. Four Governors came with spikes of silver and spikes of gold. The workmen brought the rails together. The preacher prayed and asked a blessing on the work. In every

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city the telegraph instrument was waiting—the country was listening. The man sitting under the rough boarded shelter ticked off a question to the Union. The Union answered.

"At the third tap it will be done," said the man.

"We understand," said all the cities.

Nine spikes are driven home. The golden spike and the silver hammer were connected by wire with the cities of the continent.

"Tap, tap, tap—"

Three minutes passed. Then the Union spoke. "Clickety-click, clickety-click."

"The bells are ringing and the people are rejoicing."

* * * * * * * * * *

Among the men who came from the West was a large-bearded man of about forty-five years of age. He wore a slouch hat and had his pants tucked in his boots. He passed among the crowd looking at the visitors and greeting acquaintances. Finally he stood on the outskirts of a small group of men around a Chinaman. Jim, the artilleryman, had come across one of the yellow men who had not yet been sent back to San Francisco with the horde, and was satisfying his curiosity by viewing the Chinaman from all sides and plying him with questions.

"What's your name?"

"Name Sam Lung."

"What! Do they have Sams in China?"

"Name Sam all same Melican."

"Do you eat rats?"

"No lats. Eat bluflo."

"Did you dig lots of tunnels, Sam?"

"Yeh. Manny tlunnel. All same feeteen holes in glound."

The artilleryman again walked around the Chinaman, viewing him curiously. Finally he took the queue in his hand and felt it gingerly. Finding that the Chinaman was a good natured creature he held to the pigtail as if it were a valuable curiosity, and became confidential.

"My old father used to wear one of them, Sam—all same yours. He wore it in the War of 1812—all same long time ago. Sailor-man on a boat called Cherub—all same angel. He wore it in an eelskin."

At this point the conversation, which had become a half-soliloquy, was interrupted by the alert and rather cricketymannered Celestial, who saw a chance to learn a new word.

"Wassat eelsklin?" he inquired.

"Eelskin long—all same snake."

At this the Chinaman suddenly jerked away. Evidently thinking that the snake had been an unsacred comparison to his queue, he gathered it religiously together and tucked it under his hat.

The man in the heavy beard shot out his hand and brought it down on the artilleryman's shoulder with a suddenness that almost threw the soldier-spikesman off his balance.

"Hold up your head, boy—hold up your head."

The artilleryman started back with an air of resentment.

"Take off your hat, boy."

At this the young man instantly looked defiance and stood stubborn, but was sufficiently puzzled to be only half resolved. At the moment he shot a quick glance toward the place of the golden spike and said:

"Is there going to be more praying? If there is I will take off my hat, and if there is not, then I won't take off my hat."

The elder man immediately settled the matter by snatching off the drooping slouch hat and holding the young fellow firmly by the shoulder, while he looked into his eyes.

"Is your name Jimmy—Jimmy Blue, of Zanesville?"

The look of defiance became a fixed stare. Now the artilleryman's hands shot out and grabbed the other by the arms.

"Are you Bill?—you look like Bill."

"That's me—guess I'm Brother Bill." He, too, now grabbed the other with both hands and they stood in a silent, mutual stare.

"How's mother?"

"She's feeble now."

"But living. Thank God. And father?"

"Dead."

There was silence.

When Bill had recovered himself, he opened a rapid fire of questions on the artilleryman. He would periodically repeat the inquiry with regard to mother and when he received the reply he would ask other questions. They stood with their hands clenched as if they had forgotten to let go. When Bill had repeated the question "How's mother?" until it dawned upon him that the repetition was unnecessary, he led Jim away by the arm. They sat down on a board.

"Mother is thinking of us now. She hears the bells in Zanesville," said Jim.

"And my wife and little boy are thinking of me in San Francisco. She has heard the cannon. You know, Jim, they connected a 15-inch Parrott at the Golden

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Gate with the silver hammer. When the spike was hit it fired. Quite a long-distance shot, isn't it—500 miles."

"Gee whiz!"

"Say, Jim, it's a lucky thing that you happened to be talking to Sam Lung."

"Yes; if I hadn't been bothering that fellow you wouldn't have noticed me."

"Nor recognized you if I had."

"What! Not by my eyes? Wasn't that the way you knew?"

"Why, no. Of course I saw they were familiar when I found it was you."

"Then how in goodness did you know me?"

"I knew you by father's pigtail."

Both Sides

A man in his carriage was riding along,
A gaily dressed wife by his side;
In satin and laces she looked like a queen,
And he like a king in his pride.

A wood sawyer stood on the street as they passed,
The carriage and couple he eyed,
And said, as he worked with his saw on a log,
"I wish I was rich and could ride."

The man in the carriage remarked to his wife,
"One thing I would give if I could—
I'd give my wealth for the strength and health
Of the man who is sawing the wood."

A pretty young maid with a bundle of work,
Whose face as the morning was fair,
Went tripping along with a smile of delight
While humming a love breathing air.

She looked on the carriage, the lady she saw,
Arrayed in apparel so fine.
And said in a whisper, "I wish from my heart
Those satins and laces were mine."

The lady looked out on the maid with her work,
So fair in her calico dress,
And said, "I'd relinquish position and wealth
Her beauty and youth to possess."

Thus it is in the world, whatever our lot,
Our minds and our time we employ
In longing and sighing for what we have not,
Ungrateful for what we enjoy.

—International Bookbinder.

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Edward Howland's Vindication

By W. L. French

IT WAS a balmy evening in the month of September, 1889. One of those soft pleasant evenings that lures humanity out of doors, to walk or sit in its shifting shadows and enjoy its beauties.

A young man named Edward Howland was passing along one of the residence streets of Doro, a railroad town in one of the Northern Central States. Howland was a little above the average height, compactly built, with dark hair and dark blue eyes. His occupation was that of fireman on one of the passenger runs out of Doro, on the C., J. & K. R. R. He was walking rather rapidly for one bent solely on pleasure. Eager anticipation hastened his footsteps, for he was going to call on Emily Gordon, who was soon to become his wife. Emily was a pretty girl, with blue eyes, soft fluffy hair, regular features, and mouth with a decidedly firm expression about it. Her father, who had been a conductor on the C., J. & K. R. R., was dead, and had left her and her mother comfortably off in this world's goods.

Emily had many suitors, but she had looked on none with especial favor until she met Edward Howland, who speedily won his way in her favor over some that had both money and position to commend them. One of these was Harry Sherman, general foreman of the machine shops at Doro. Sherman had learned the machinist's trade at Doro and worked up to be a gang boss, then the death of a relative brought him a large sum of money that made him independent of any position, but he took a leave of absence instead of quitting, and when he returned he was given the position of general foreman, probably more on account of his good fortune than his ability to fill the position.

Edward was warmly welcomed by his affianced, and the talk after a time turned on Harry Sherman.

"Edward, is Mr. Sherman in a position to do you injury?" asked Emily.

"I hardly think so; no more than loss of position at most. But why do you ask me that, my dear?" he replied.

"Well, I hardly know," said Emily, "only I feel that the man is full of treachery and would do a great deal to carry a point. When he asked me to marry him he urged his suit very strongly until I told him that it was useless—my hand was already promised. He wanted to know if it was you and, while I did not think he had any right to question me, I told him yes. He grew angry and, for an instant, his brow contracted, but in a moment he was himself, wished me joy and bade me good night. Since that time I have hardly seen him, but his very quietness alarms me."

"Small things to be alarmed about, Emily," replied Edward. "Mr. Sherman has been unusually friendly to me of late. Perhaps I had better watch him; he may be meditating some treachery."

"No matter what he may do, Edward, my love and confidence in you will always remain unshaken, but I am growing tragic without reason. Let us talk on more congenial subjects," said Emily.

"Nothing is more pleasing to a man, Emily, than to know the woman he loves really is interested in his welfare," replied Edward.

Harry Sherman did hate Edward Howland heartily, but he was too shrewd to let it appear on the surface. When he first learned that Edward was preferred to himself by Emily he had been near betraying himself, but he soon regained his wonted composure. At once he commenced to plan how he could disgrace Edward, for he believed that Emily would not marry a man publicly disgraced, and with him out of the way Sherman believed he could win Emily; he so little understood her character. He soon had his plan formed. He needed an accomplice, and he fitted the plan to suit the man he had selected to assist him. Charley Liscombe was the man. He was cashier of the First National Bank of Doro, and he and Sherman were on very intimate terms. Many nights they had spent together over the gaming table, and Sherman had acquired a strong influence over the man on account of his knowledge of the other's errors and the power which a strong will always acquires over a weak

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one. Liscombe drank hearty when at cards, and when under the influence of liquor he played without regard to the consequences. The result was that he was heavily in debt to Sherman, and had taken sundry sums from the bank, not his own, which he had covered by a skillful manipulation of figures, and which he expected to repay when he made a big winning, as all gamblers expect some time to do.

A couple of days after Edward's interview with Emily, Harry Sherman approached him as he was preparing his engine to go out, and said: "Edward, I wish to use $25 to pay a man who is in a hurry for his money, and I haven't the cash or my check book with me. If you have the sum about you, kindly let me have it until you come in tomorrow evening and I will give you a check for it, and also be under obligations for the kindness."

Edward saw no good reason to refuse. Mr. Sherman's financial standing was unquestioned; he had the money, and replying, "Certainly," he took the money from his pocket and handed it to Mr. Sherman. The latter thanked him and turned away, the first part of his scheme successful.

That evening Sherman was out with Liscombe, and after the latter was well under the influence of drink Sherman called him aside and told him what he wished him to do. The plan was for Liscombe to pay the check, charge the amount of cash paid as $225, pocket the $200 for his share of the work, and raise the check from $25, as originally written, to $225. Sherman assured him that he would write the check so it could be easily done. Liscombe was to insist and swear, when need arose, that he paid the full sum to Edward Howland.

At first Liscombe refused, but when Sherman urged, and even threatened, exposure to Mr. Kane, the president of the bank, of some of his acts if he did not do as he, Sherman, wished, he yielded and promised to carry out his part of the program. Sherman bound him with an oath, and promised if he carried his part through faithfully to cancel all his gambling debts that he owed him, and give him $500 additional. Sherman understood the power of money over a man of Liscombe's type. Sherman gave Howland a check for the $25 when he came in from his run, and the next day Edward cashed it at the bank and Liscombe carried out his contract with Sherman faithfully.

A few days later Edward Howland was requested by a private messenger to call at the bank, as Mr. Kane, the president, desired to see him. Wondering what the gentleman could wish, Edward made his way to the bank and was ushered into the president's private office, where he found Mr. Kane, Mr. Sherman, and Charley Liscombe. After greetings had been exchanged and Edward was seated, Mr. Kane said:

"Mr. Howland, did you cash a check here last Friday that you received from Mr. Sherman?"

"I did," replied Edward.

"What was the amount of that check," asked Mr. Kane.

"Twenty-five dollars, sir," replied Edward.

"How about that, Mr. Liscombe?" asked Mr. Kane.

"The check I cashed called for $225. It is here to speak for itself," said Liscombe, but he avoided looking Edward in the face as he spoke.

"What's that?" said Howland, starting to his feet.

"I think I spoke plainly," replied Liscombe.

"The fact is, Mr. Howland, Mr. Sherman gave you a check for $25; that you both say. The check has turned up at the bank calling for $225, and Mr. Liscombe says he paid you that amount. You can draw your own conclusions," said Mr. Kane.

"In other words I stand accused of raising that check?" said Edward.

"You do, I am sorry to say," replied Mr. Kane.

"Charley Liscombe, do you have the courage to face me and say that you paid me $225 on that check?" demanded Edward.

"I have, for I paid it to you," replied Liscombe.

"You are a liar. I think I understand the game, and I'll choke the truth out of you," and Edward started toward Liscombe. Harry Sherman and Mr. Kane crowded in his way.

"No violence, Mr. Howland," said Mr. Kane.

"Edward, if you have done this thing, the best thing for you is to quietly settle the matter and no doubt the affair can be hushed up," said Sherman quietly.

"I do not care for any of your advice, Harry Sherman. In my own mind I am satisfied you are at the bottom of this affair. I am innocent, and I think my word is as good as Liscombe's any day," said Edward.

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"Your word might be but you forget the evidence of the check. At Mr. Sherman's request I had agreed to accept the money back which you had wrongfully received and let the matter drop. That offer is open to you yet," said Mr. Kane.

"And if I decline?" asked Edward.

"You must take the consequences," said Mr. Kane.

"I will take them. I am innocent of the charge, and I will suffer any punishment that may fall to my lot rather than be a party to blackening my own character to purchase immunity from the dirty trap set for me by my enemy," replied Howland spiritedly.

"I hope you will be able to prove the innocence you claim," replied Mr. Kane as he arose and, opening a door, spoke to someone in another room.

A moment more and an officer entered. Mr. Kane informed him that he wished Edward Howland arrested for obtaining money dishonestly. Five minutes later Howland was on his way to the jail in charge of an officer, and the news of his reputed crime was flying over the town on the wings of the wind. He felt the black shadows fall about him as the cell door closed behind him, but in his inward cry of misery was only the echo of thousands of pain-torn souls who suffer blackest despair that the joys behind its clouds may be the sweeter.

The information of Edward's arrest reached Bill Thomas, Howland's engineer, inside of half an hour after it occurred. Bill was doing some work on his engine, but he immediately threw down his tools, pulled off his overclothes, and went in search of Harry Sherman, whom he understood was authority for the statement. He soon found him and asked him what he knew about the matter, and Sherman told him, making the case as dark for Edward as possible.

"Blamed if I believed Ed. Howland would do a trick of that kind. He could get money if he wanted it for the asking, and I don't believe he needed it anyway, for Ed. always saved his money," said Bill.

"It doesn't seem possible, but I have given you the facts in the case," replied Sherman.

"I'll bet that he don't stay in the coop very long. If money and rustling will get him out I am going to have him out of there in time to go out on his run tonight, and Tom Scott is the boy to help me," and Bill Thomas started at once for Scott's office.

Sherman looked after him in a disquieted way. Things were going differently from what he had anticipated, in some respects. Bill Thomas was one of the oldest engineers on the road, a man who stood well in the community, strong in his dislikes and likes, an ally not to be despised, and with Tom Scott to assist him Sherman felt uneasy as to what might be the outcome.

Tom Scott was an old friend of Bill Thomas. They had studied, fought, and played together in boyhood, cementing the friendship that was to continue through their lives. Tom Scott was conceded to be the leading lawyer in Doro. Thomas told him of Howland's trouble, and that what he wanted to do was to get the boy out on bail for his preliminary hearing. Scott suggested that they go to the jail and see his client before taking any legal steps. They went at once to the jail, and at the entrance they met Emily Gordon and her mother bent on the same course.

In a village where everyone knows everyone else things are managed more easily than in larger centers, and they found no trouble in securing an interview with Howland. He was sitting rather dejectedly on his bunk as they entered, but he sprang up with a cry of welcome and Emily was clasped in his arms.

After the first greetings were over Mr. Scott asked him for his story, and allowed him to finish without interruption, and he was convinced of Edward's innocence. A few questions about Sherman and Liscombe, and Mr. Scott was ready to go. He went at once to work and in two hours Edward was out on bail. Bill Thomas made it his business to see the master mechanic and tell him Edward's story. He had already heard a biased account of it from Sherman, but on Bill Thomas' showing, the master mechanic assured Bill that Howland could work until proven guilty; that he was not called on to presuppose a man's guilt and discharge him on supposition, and Bill thanked him heartily and went away. Bill also made it a point to see Edward and have him go out on his run, the same as if nothing had happened, and these very things influenced many in Edward's favor. True, he found many who failed to see him on the street, and others who spoke but indifferently, but on the whole things were better than he expected.

At the preliminary trial he was held under bonds to the November term of court. Mr. Scott made no effort to prevent this, failing in any way to show what line of defense would be adopted. The bonds were promptly furnished by

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Bill Thomas, and Edward kept on at his work as before. At the preliminary trial Harry Sherman met Emily Gordon and undertook to express his sympathy for the disgrace Howland had brought on her good name. Her reply cut him deeply, and awoke in him a realization of the fact that Emily Gordon despised him, and that even with Howland out of the way he stood no chance of winning her. His hatred for Edward grew in proportion as he saw his chance of winning Emily fade, and in a number of petty ways he showed the true feelings of his heart, but by the advice of Mr. Scott, Edward ignored all his actions and remarks.

The day before the preliminary trial came off a well dressed gentleman, calling himself Mr. John Sly, appeared in Doro. He said he represented the Milton Machine Company and was more particularly interested in a new planer attachment which he hoped to get the C., J. & K. Railway Company to adopt. He deposited several hundred dollars in the First National Bank, and in a casual way became acquainted with Mr. Liscombe. Much of his time during the day was spent at the C., J. & K. shops in the company of Mr. Sherman, whom he desired very much to interest in the planer attachment. His tastes seemed convivial and he, Sherman and Liscombe were together a great deal at nights, following up Sherman's and Liscombe's old routine of drinking and gambling. At the end of ten days he spoke of soon going on, as he had been very unsuccessful in his business at Doro. The next day Mr. Sly, Mr. Scott, and Mr. Kane, the president of the bank, met in Mr. Scott's office, and Mr. Sly submitted some facts in regard to Charley Liscombe that caused Mr. Kane to open his eyes in astonishment.

The old gentleman was greatly disturbed, and was for at once summoning Liscombe and confronting him with the knowledge of his dissipated acts, but Mr. Scott and Mr. Sly had planned otherwise. An expert accountant, whom Mr. Sly named, was telegraphed to come to Doro at once. He was expecting such a summons, as Mr. Sly had warned him by letter that his services would be needed on short notice, and the next day when Charley Liscombe entered the bank, feeling unnerved and worn out from a night's dissipation which Mr. Sly had taken care to see was unusually severe, he found Mr. Kane and the expert already there. Mr. Kane told Liscombe to give the gentleman all the aid in his power in going over the books, and then retired to his private office.

Something in Mr. Kane's manner struck Liscombe as odd, and he realized at once that something had occurred to place him under suspicion. He at once conjectured it was the Howland affair, and he mentally cursed Sherman for dragging him into it. He would willingly have assisted the expert and, if possible, started him on false lines, but that gentleman went quietly and methodically about his work in a manner that suggested he knew his business. A cold sweat broke out on Liscombe. His work was well hidden, but he could not hope to avoid discovery more than two or three days. If he could avoid discovery until night he would fly, and by morning he hoped to be beyond successful pursuit.

How slowly the day dragged along, and how he watched every move of the expert with nervous terror. Night came at last and the accountant had discovered enough to satisfy him that Liscombe was a heavy defaulter, but he determined not to speak until he had finished. After supper Liscombe went to his room, and after putting a few effects in a small valise he sat down to rest and compose himself a little before commencing his flight. There was a train which would leave for the north at 9 p. m. He would go down a back street, slip on the train unnoticed, and his flight would remain undiscovered until late in the morning. He carried his plan out well. The train was just starting to leave as he went to get aboard from the street side. A hand was laid on his shoulder, and a voice he recognized said:

"We can not spare you just yet, Mr. Liscombe."

He looked around into Sly's face. He realized it was all up with him; the web he had helped most to weave was closing around him. He jerked away and grasped the handles of a coach as it came past. The speed was greater than he thought, and he was whipped off his feet; his body swung against the steps for a second; he dragged along, then, his hold broken, he went down, and the wheels crushed the lower part of his limbs. No one but the detective had noticed the accident, but a crowd soon gathered and Liscombe was carried to his room and surgeons summoned. He was too badly crushed to admit of any hopes for his recovery, and the surgeon frankly told him that he had best settle his worldly affairs, as all he could do for him was to ease his pain.

For a time Liscombe lay silent. This then was the end of his reckless, ungov-

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erned life. He sighed as he thought how different it might have been. But what he could make right he would make right, and he asked that Mr. Scott and Mr. Kane be sent for. To them he told of his misdeeds and of Sherman's plot to ruin Howland, and how he had assisted in the plot. Mr. Scott was careful to get the matter all down in legal form so that Edward Howland's vindication would be complete. Before morning Liscombe had passed away.

Harry Sherman was arrested by Mr. Sly for the part he had taken in defrauding the bank. He furnished a cash bond and, getting what money he had, disappeared from the knowledge of the people of Doro forever.

Emily and Edward were overjoyed at Edward's complete vindication. The following Christmas they were married, and Mr. Scott and Bill Thomas were the guests of honor on that occasion.

Hiawatha Up to Date

"Should you ask me whence these stories,
 Whence the legends and traditions,"
Tales of break-in-two's and head-ends,
 Tales of grief, and tales of trouble,
Tales of fast runs and of pleasure:
 I would answer and would tell you;
From the hotels and lunch counters,
 From the liar's bench in the round-house.

Told by the "Con" and by the "Hog-heads,"
 By the "Head screw" and the "Tallow-pot,"
Told by men from off the main stem,
 From the land of the Dakotahs,
From the land of Minnehaha,
 From the dells up in Wisconsin,
From the land of Sioux and Foxes,
 As they gathered 'round the slow board,
As they sat and smoked the peace pipe
 'Round the hotel and lunch counter.
Wonderful indeed the stories
 They brought down here from the Northland.

And the student's eyes would open
 As he heard these tales of wonder,
And what happened in Missouri,
 When your "Uncle" had the meat train.

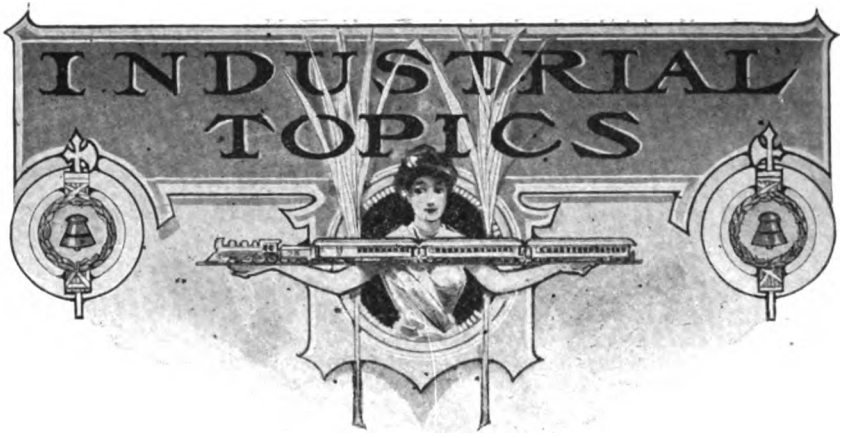
When they ran the meat train X-tra
 Sixteen loads he made a kite of;
How the "Hannibal" got the crossing,
 But your Uncle tore right after,
"Whistled off," and went right by him,
 Just as tho' he had been standing.

How he took a ramps through Moseby,
 And a little dash thro' Braymer,
Made the natives stare and wonder.
 "Look!" they said, "there goes the meat train."
And the student slowly answered,
 As he filled his pipe with long green,
"I am from Missouri; Show me."

Many and strange the tales they told us,
 And perhaps in the dim future,
(If I am not scalped and murdered)
 I will write and try to tell you
Of their doings on the "K. C,"
 Of their actions in Missouri.

—"Dutch."

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A Mistaken Conclusion.

Gunton's Magazine, an authority on political economy and a friend to union labor, sometimes jumps at wrong conclusions. For instance the following:

"The so-called 'stock-watering' does not affect the productive or profit-earning capacity of the concern, but it does sometimes mislead investors, and if the capitalization has been excessive it may reach the no-profit or very low profit earning point. That will tend to depress the securities in the market and may lead to disturbance of business confidence. But to insist, as some of the bills now before Congress do, that the corporations shall not capitalize for more than the actual cost of erecting their plants is economic idiocy."

Wages of employes of corporations are always reduced because the stockholders are unable to pay the previous wages, because the stockholders are not making money, because no dividends have been paid for a long time, or for some other similar reason. A concern that is able to pay good wages to its employes and good profits on a capitalization of $1,000,000 can not pay good wages to its employes and as good profits on a capitalization of $2,000,000. As the stockholders are in command, they usually decide that employes' wages be reduced, because profits are not sufficient on the $2,000,000. It is not "economic idiocy" for employes of corporations to fear the results of "stock-watering."

The worst feature of fictitious capitalization is that the crime is committed when prosperous conditions afford profits for the "watered stock," and millions of the earnings of the corporation are paid out to the holders of these counterfeit certificates of ownership, and when a commercial panic overtakes the industry the operating officials find the treasury of the corporation looted, and to avoid bankruptcy wages of employes are reduced.

Some day a judge will be found that does not owe his position to corporation favor, and an injunction will be granted, at the request of employes, which will forbid the creating of counterfeit stock which must in time result in disaster to employes and the public.

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The Judicial War on Working People.

It seems incredible that working people do not resent the war continuously waged upon them by the courts. The working people have the political power to enact laws, to change the Constitution, so that the judiciary be subordinate to the legislative branch of the American Government, and that they do not do it only demonstrates that the education of the working people is incomplete.

The Legislature of Indiana enacted a law which compelled employers to pay for the services of their employes at least once in two weeks, railways being excepted. Presumably this law was the expressed desire of the citizens of Indiana.

Now comes a judge, more powerful than the people of Indiana, and says that the will of the people shall not prevail, that the law is "unconstitutional" because the Legislature may not restrict the "freedom of contract" between employers and employes.

As evidence that the judges are making war upon the working people the following is cited: In the State of Indiana

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there is a law which forbids the playing of base ball on Sunday, if an admission fee is charged. Let us presume that the management of a ball team enter into a contract with the ball players in their employment to play ball in Indiana on Sunday, would these same judges declare the law against ball playing on Sunday "unconstitutional" because "the Legislature may not restrict the freedom of contract between employers and employes?" Not on your life! But if the capitalists were to go into ball-playing as an industry, whereby profits were made from the labor of the working people on a large scale, then the judges would rush to the rescue and declare the Indiana Sunday law "unconstitutional."

Many laws are enacted in all States which *forbid* the "freedom of contract," when such contract results in injury to the public; it is only when the owners of wealth profit, and the working people suffer by such contracts, that the "Constitution" is used to perpetuate the iniquity and to rob the people of their power to make their own laws.

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The "Mosely Commission" Report.

It will be remembered that Mr. A. Mosely, an English capitalist, and, we may say, philanthropist and economist, invited many trade union officials of Great Britain to join him in a trip to the United States for the purpose of investigating the supposed advantages of "American methods" over those of Great Britain. Mr. Mosely paid all expenses, and all that he asked in return was that every member of the commission keep his eyes open, investigate thoroughly American methods in his own trade, and make an unbiased report when the investigation was finished.

The report of the commission has been made public and, naturally enough, has evoked considerable criticism; some favorable and others denunciatory. The complete report has not reached this office, but the following editorial review of the report by London Engineering may be taken as a British employer's opinion:

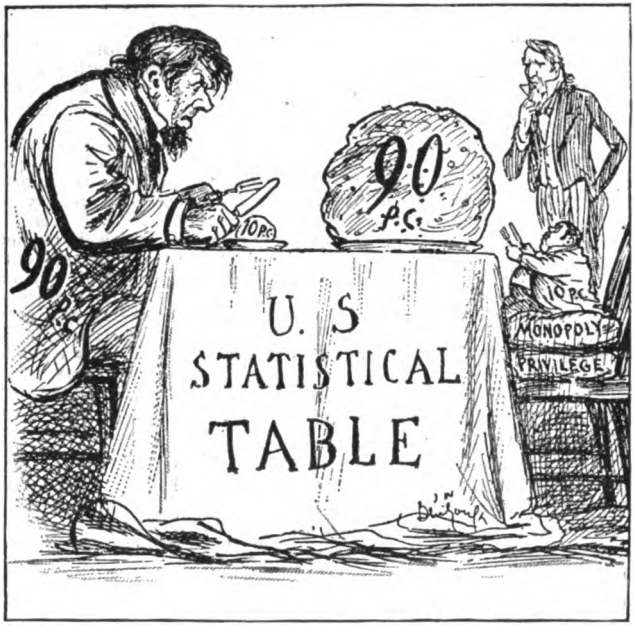
"Mr. Mosely's conclusion is that 'the true-born American is a better educated, better housed, better fed, better clothed and more energetic man than his British brother, and infinitely more sober; as a natural consequence, he is more capable of using his brains, as well as his hands.' As a general principle we think the reports of the delegates fully bear out this view, although opposite opinions are expressed in regard to some of the points. For instance, one delegate considers that American workmen are too well fed, or, rather, that the luxury and variety of feeding are too great, and to this he attributes the somewhat shorter span of life of the American workman, as compared to his more simply fed British fellow. On the question of sobriety there is fair unanimity of opinion in favor of the American. Mr. Wells, in answer to the question, 'Is the American workingman more sober?' simply answers, 'Yes.' Mr. Maddison says, 'I believe he is.' Mr. Cox says, 'He certainly is.' Mr. Barnes says, 'I should say he is.' Mr. Cummings remarks, 'While the American workman is sober during working hours, yet he is as much inclined to a spree as the ordinary Britisher.' Mr. Wilkie does not answer the question, whilst Mr. Holmshaw and Mr. Jones both reply to it in the affirmative, the former adding, 'It is unusual to see intoxicated men in the streets.' In regard to gambling, the evidence is in the same direction. The American workingman apparently 'knows nothing about it,' and therefore his energy is not clogged by anxiety as to the winner of a race or a football match, nor is money lost which, if properly used, would render him a more efficient workman. No one who is brought into intimate contact with the working classes in this country can fail to observe how rapidly the wagering habit is increasing in the present day. Betting is generally considered one of the venial sins. It may be so, but in the opinion of some in a position to judge, it is, in the aggregate, fast becoming a more serious evil than even drunkenness.

"Mr. Mosely goes on to point out that many workingmen in America holding leading positions are either English or Scotch. That agrees with our own observation, and it indicates one of the most prominent advantages held by the United States. To feed, clothe and educate a young man until he reaches an age of maximum efficiency involves a serious expense, and each ready-made workman sent to the United States represents a tax paid by this country to support the industry of a competing nation. When the emigrant is among the most enterprising, able and energetic of his class, as is too often the case, the loss is greater.

"One of the principal reasons why the American workman has an advantage over the British workman is, Mr. Mosely tells us, because he has received a sounder and better education. The delegates on the whole agree with this opinion; although we seem to see throughout the reports a tendency to regard education from too narrow a point of view. In the American State schools—unlike our Board schools—the children of rich and poor art taught together, and the home influence of the more wealthy, and therefore more leisured classes, is brought to bear on those less fortunately situated. This is one of the chief influences of American education, far more important than lessons; but it is not sufficient to account for the greater ambition, the more strenuous endeavor to push to the front,

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which characterizes so many of the working classes in the United States. The chief inducement is the reasonable hope of advancement that social conditions hold out to young men of all classes in America if they have ability fitting them to fill higher positions. The delegates, in their reports, make frequent allusion to the greater appearance of equality or absence of restraint in intercourse between master and man; but this is an effect, not a cause, as seems to be often imagined. The American employer has more sense of the value to himself of what may be comprehensively described as talent among those who do the work of the establishment than has his British confrere. One of the best known of America's self-made millionaires once said: 'We prospect for talent as a miner does for gold;' and he attributes his success to the endeavor he has always made to find a good man, no matter in what rank, and to make the most of him. It was in his works that a young British mechanic, who left his native country because America held out to him a wider scope for his ambition, was rapidly promoted, step by step, until he became manager of one of the largest works in the United States, and under his vigorous direction these works became one of the most successful in the country. A little encouragement of the same sort would doubtless have kept the workman at home, with a benefit to British industry which it is difficult to estimate. Now he is an opponent in neutral markets to the industry of the country which educated him and gave him birth. Another instance may be given by way of illustration, for it is a very striking one, though it is outside our own province. Some years ago a young chemist was engaged in an English factory and made several valuable discoveries in the process of manufacture followed. He was receiving a moderate salary, and asked for a better position. This was refused, so he went to Germany, where he founded a firm which became so successful that it is one of the largest and richest establishments of the kind in the world, and the German industry in this line has practically killed that of England, where it arose.



Ninety per cent. of the wealth of the United States is held by ten per cent. of the people

THE PIGMY GORGED; THE GIANT STARVED

(From The Public)

"It would seem that in this country we do not put sufficient value on the man, especially the young man, and the potentiality for success that exists in the talent or genius of young men. We are too apt to think a big works will continue to go on prosperously because it is established and because it has been prosperous in the past. There are many examples of the folly of these views.

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"Mr. Mosely expresses some opinions on the way in which labor is remunerated in this country, to which we should be glad if we could unequivocally refuse our support. 'In England,' he says, 'it has been the rule for generations past that as soon as a man earns beyond a certain amount of wages, the price for his work is cut down; and he, finding that working harder, or running his machine quicker (naturally a greater strain), brings in the long run no larger reward, slackens his efforts accordingly. If this be the case, can we blame the workman?' In too many engineering establishments in the past this short-sighted policy has been followed, and the efficiency of a works manager has been gauged by his ability to get the work done cheaply—'to knock the work out of the men' has been the expression. That feeling, however, is rapidly passing away; indeed, within the last few years both employers and employed have taken a juster view of their duties to each other, and, concurrently, of their own respective interests. Proofs of growing reasonableness are to be found in the steps that have been taken by some engineering firms to give their men a permanent and assured share in additional profits that may follow closer application to work. The paper read by Mr. James Rowan at a recent meeting of the Institution of Mechanical Engineers bears witness to this endeavor.

"Whether the American workman is on the whole better off than his English fellow is one of the points put to the delegates in the series of questions submitted. That he receives higher wages goes without saying, but he also works longer hours. Still, the rate of pay is higher. Most of the delegates expressed surprise at not finding evidence of the excessive haste or 'hustle' which they had expected to find in American workshops, and they appear generally to consider that the American does not hurry over his work more than the Briton. This is true to a considerable extent. The American is not constantly working at racing pace, he does not tear at his job; in fact, we have never seen men labor so strenuously in America as we have in England on piecework, to take a single instance, on the casting of railway chairs. But the American workman keeps on, he does not dawdle or idle when the manager or the foreman is not looking. Whether he is more conscientious than others is a matter of opinion, but, at any rate, it is not the custom to slack, and we all know how powerful a factor custom is in the workshop. For our own part we are inclined to agree that the American workman is no more likely to be overdriven—to the extent of injuring his health—than the Briton; but if the latter goes to the United States and thinks to continue a habit of excessive leisure in his methods, he is likely to be much disappointed.

"A good deal is said about the additional cost of living, which, of course, would counterbalance the advantages of higher wages. So far as the workingman is concerned, this drawback is largely exaggerated. Plain food is, on the whole, as cheap as in England—in some cases cheaper. Rent is higher in nearly all cases; clothes are hardly dearer. This applies to the workingman's needs; if we pass to luxuries, especially imported articles, no doubt the scale of prices is very much higher than in England. Amongst such luxuries we would include tailor-made suits; but so far as factory-made clothes are concerned, there appears to be very little difference, unless imported fabrics are used. The American mechanic, no doubt, spends more on dress than the English mechanic; but, then, he is much more smartly dressed.

"On the whole, the opinion appears to be that the American is better off than the Briton when he comes to balance income and expenditure. Probably the percentage of advantage of 20 to 25 per cent., given by one delegate, may be taken as a typical estimate.

"The question of the use of labor-saving machinery is raised amongst the rest in the list, and the opinion is freely expressed that it has a large influence on the success of American factories in increased cheapened production. It would be difficult to arrive at any other conclusion. There seems to be a disposition to throw the blame of backwardness of England in this respect onto the owners of works for not spending money on new tools. Those who have had experience in the management of engineering works will know what value to put on such suggestions, as they will be aware of the obstacles put in the way of labor-saving appliances by trade unions; whether with or without the approval of the central office does not matter; the result was the same. The question has more than once been discussed in our columns on previous occasions, and we have no desire to renew an unpleasant controversy. Employers will doubtless be content to forget the past and accept the intimation that the trade unions will not oppose the introduction of labor-saving tools.

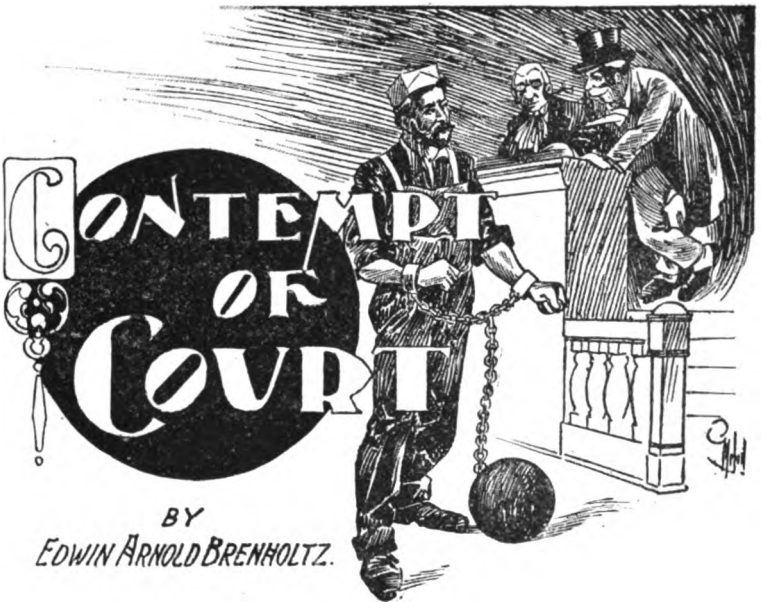
"There are many other important questions brought forward in the reports, but we must leave them for a future occasion, when we shall return to the subject again."

* * *

The Old Story.

It will be remembered that the Knights of Labor started out with words of kindness for the railway brotherhoods and other trade unions, but assurances that "class" organizations were "a failure," and that all railway employes should join the Knights of Labor. Railway employes were not convinced that "general unions" were more prolific of benefits than "trade unions," and, therefore, remained with the brotherhoods. Then came abuse and vilification by the Knights of Labor high priests. Nothing was too mean for them to say about the railway brotherhoods.

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What is the charge? Contempt of court?
How gladly "Guilty" I retort.
Injunction of your court, learned Judge,
From his contempt makes no man budge.
Your powers, usurped, teach us how we
From gowned usurpers may be free.
This great contempt that comes to man
At hearing of illegal ban
Is treasured, fostered, in our heart
As sign of what should ne'er depart
From those who would be no man's slaves—
E'en though injunctions threaten graves.

You will observe: From this contempt
Your person, Judge, is free, exempt.
For you, what stirs is pity's thought
That wealth, a man, to this has brought.
I stand and gaze at your stern face
And pity him who owns disgrace
In charging me with this contempt—
Of which the guiltless ne'er had dreamt.

You will observe: The Court's attempt
To muzzle, fetter, breeds contempt;
And this contempt shall compass you
In minds of men, save those, the few,
That think how past usurpers paled—
How they past actions then bewailed—
And shrank from doom their acts had dared,
And how they plead—but were not spared.

Contempt, contempt! Contempt, contempt!!
This you have won. Why will you tempt
This people, patient, toiling, strong,
To rise against your monstrous wrong?
Has your intent within its range
To goad these workers to estrange
Peace-loving men (when hate has grown
From this contempt your hand has sown)
By call to War where you may kill—
All legally—these men and still
Their loud demands for work and bread;
To thin these ranks we have not fed?



(From Boyce's Weekly)

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Then the curtain fell on the Knights of Labor drama with rumbling of drums and red fire.

Then came the American Railway Union, which followed as closely as possible in the footsteps of the Knights of Labor. The same assurances of friendship; the same arguments against "class" organizations; the same failure to convert; the same angry denunciations; the same falling of the curtain amid the rumbling of drums and red fire.

Then came the United Brotherhood of Railway Employes, which, so far, has taken the same route as its two prototypes. The first period, that of assurances of friendship for the railway brotherhoods, has been passed successfully; the second period, that of argument against "class" organizations and in support of "general" unions, has been performed without a hitch; the third period, that of failure to convert, has been a repetition of the two previous efforts.

The following is taken from a report of an address by the president of the U. B. R. E., which was delivered at Vancouver, and which was published in the official journal of that organization, and which indicates that the U. B. R. E. has reached the fourth period, that of abuse of the railway brotherhoods:

"These orders were a curse to railway employes, because they were *under control of capital.* These truths might hurt, he (the president of the U. B. R. E.) knew that, and the men might hate him for making such statements. It was his duty to speak plainly, he could not help it, his statements were true. *Class orders and contracts make men scab,* one can not get away from that. The recent ruling of the Trades and Labor Council hurt. He would sooner see men scab without a contract than with one, because with one it made the action appear to be premeditated. One is simply forced into it, and the only solution was to get out of such an order."

* * *

Unfair Criticism.

The Railroad Gazette, a publication that should be better informed concerning facts, takes the position that trade unions "do not help their members," meaning that they do not result in shorter hours of labor, increased wages and better treatment. The fact that these three are the matters of contention between the servant and master, and the fact that a united demand is of more force than an individual demand, disprove the statements of the Railroad Gazette, without citing specific instances in which trade unions have "helped their members."

Less than ten years ago the bituminous coal miners were in an unorganized state and were working ten hours per day for low pay. Since then, through a compact trade union, these same miners have gained an eight-hour day with greatly increased pay. Only two years ago the anthracite miners were unorganized and poorly paid. Since then, by two strikes, they have gained a shorter work day and an increase of 20 per cent. in wages. It is true that the first increase of 10 per cent. was gained by a strike shrewdly inaugurated on the eve of a presidential election, and the last ten per cent. was gained through arbitration, but without the organized effort, which was only effective through a trade union, they would be no better off today than before the first strike.

Again, the Railroad Gazette falls into the error which has always been assumed for truth by the employers who have opposed trade unions, by assuming that it is the "agitator" and union official that provokes strife between employers and employes. This was the contention of the Wabash officials when they induced Judge Adams to issue his now notorious injunction. Judge Adams found that while the trainmen and firemen of the Wabash had conducted their negotiations through the local and general officials of their respective trade unions, the latter had been acting only as agents, who were carrying out the expressed instructions of the trainmen and firemen in the service of the Wabash road.

In its general assault upon trade unions the Railroad Gazette cites some characteristics of certain unioins and union men which are not above criticism and assign responsibility for such to all trade unions, or, at least, to the trade union movement. This is unfair. The Christian church has been the direct cause of more atrocious murders, more horrible persecutions, and more wrongdoing than can be laid to all of the "sinners" of Christian countries, yet this is no reason why the Christian faith should be denounced, even though this wrong-doing has existed continuously from the Mosaic Wars to the present slaughter of the Jews in Russia. The Christian faith is no more responsible for the fanatics it may include in its ranks than is the trade union movement responsible for the illegal acts of some of its members.

Trade unions do not indorse violation of the law by members any more than Catholics indorse the "massacre of St. Bartholomew," or than Protestants in-

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dorse the religious murders of the Elizabethan period, or than the present Christian people indorse the persecution and murder of Jews by certain members of the Christian faith.

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Another Locomotive Engineers' and Firemen's Brotherhood.

The following is a copy of a circular that is being sent out from Chicago to members of the Brotherhood of Locomotive Firemen, and to others who might be induced to contribute to the funds of the new movement:

Chicago, March 24, 1903.

Dear Sir and Brother:

It affords me great pleasure to introduce to your notice our Brotherhood. We are now about one year old, and have a good, strong membership which is composed of ex-locomotive engineers and firemen, of which about 50 per cent. are firemen, and we are giving firemen the preference, as they make the best engineers. They take more pride and interest in their work than do the old sorehead engineers whose seniority and red tape rules have kept the firemen heaving coal until most all have gotten disgusted, and a great many have thrown down the scoop and come to us for a job on the right-hand side, which they get, and a better job than any extra or chain-gang engineer has on our trunk lines, for when you start to work you know you are going to work until night and when night comes you go home in peace and know that you are going to sleep the sweet sleep of rest without the caller's voice awakening you at 2 a. m. for an extra east or west, as the case may be.

Many people are at a loss to know what we mean by the word "dinkey." This is simply a distinction from Mr. P. M. Arthur's B. L. E., as dinkey work takes in all locomotives operated regardless of train dispatchers' orders and time card rules.

Mr. P. M. Arthur has barred all dinkey men from his B. L. E. and it is for this reason that we have a business of our own. We have many Santa Fe men with us who have left the "Battleship" and come to us for dinkey jobs, and who are now getting $90 per month straight time, eating three meals a day and sleeping regular, and say that they are better satisfied than they were on the "Battleship" and they had the easy side of the ship.

We are about to consolidate with the United Brotherhood of Railway Employes, which will give us a membership of over 72,000 and the support of the same. The members can also take out from $500 to $3,000 insurance at the cheapest and best rates for this class of work in the world. Now, we are not trying to get members to take out insurance; this is simply at their option.

What we want is good, honest, sober firemen who have fired three years or more to come and join our Brotherhood and take an easier and better position. As I said before, we are giving firemen the preference. It costs but $6 to become a member fully paid up until June 15, 1904. This special rate is good until June 1st to locomotive firemen only. Regular admittance fee, $10; dues per year, $6. No cards or certificates issued to members for less than one year. We have no delinquent members. If our Brotherhood interests you, address, for further information, by-laws, etc.,

H. W. ADDINGTON,
Grand Chief Engineer.
Washington Heights, Chicago, Ill.

No man who gives the subject the serious thought that it deserves will be instrumental in launching a labor organization that is to compete for jurisdiction with another labor organization that represents the same craft, if he is a *true* friend of the labor movement. If there be in existence a union of any trade, which union has developed considerable strength, no *real* friend of the labor movement will be guilty of organizing another union which must wage war against it. It matters not what may be the policy of the existing trade union, the union that attempts to and does displace it does practically what the scab does when he displaces another workingman. It is true that scabs have at times offered some very good excuses for their scabbing, and so can new unions offer good excuses for their acts in displacing other unions—but the principle is practically the same.

More injury is done to the cause of organized labor by the institution of competing unions than by the scabbing of a thousand "strike-breakers"—for the injury done by the latter soon heals, while the wound inflicted by the former becomes a festering sore. The weakest feature of the American Federation of Labor is the continuous civil wars waged between its constituent rival unions. These fratricidal guerrilla warfares have done more to defeat the purpose of organized labor than all the scabs the country has produced—in fact, most scabs are the legitimate fruits of the throat-cutting tactics of rival unions. When we stop to consider that only a small percentage of the masses of working people have allied themselves with the unions affiliated with the A. F. of L., which unions represent nearly all trades, is it not time for organized labor to resort to a "Hague Tribunal" where disputes concerning jurisdiction may be forever settled?

It is evident that "Grand Chief Engi-

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Capital.—"Yes, my son, our giant is angry. He does not like the whips that I have been whipping him with. He is going to strike.

"But don't be alarmed. All I have to do—



is to change myself into a Federal Judge and hand this piece of paper to him, and if he shouldn't get right down on his knees the Taxpayers will furnish us the Soldiers to shoot him."

GOVERNMENT BY INJUNCTION

(From Seattle Socialist)

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neer Addington," of the "International Brotherhood of Dinkey Engineers," expects to gain converts for his new organization by abuse of the B. L. E. and its officers. This means of building up an organization has failed in the past, and it will fail again. Switch engineers are amply protected. If the B. L. E. will not take care of them the B. L. F. will. As they seem to have two organizations to fall back on already, there is but little use for a third one.

If the purpose of the new organization is to organize a union of engineers that have no union representing their peculiar employment, then a new union should be organized, and it should have the aid and assistance of other unions.

If there exists a union of any craft, no man of good character and knowledge of the trade will be debarred—and it is the duty of every man working at the trade to join with that union. The policy of the union should be dictated by a majority of its members, and the minority should yield to this majority. Without this disposition to yield to the majority no organization can long exist—not even the organization of national government. If the officers of any union, or the policy of any union, is objectionable to a majority of th workers in any trade these officers and policies can be changed at any time by the workers of the trade joining the union.

Of course, it is possible that two unions may have nearly equal rights, and each may believe the other is in the wrong. Then there should be some means of adjusting these rights that does not include a warfare, which must result in injury to not only the combatants, but to all working people.

The only evidence of the existence of the "Brotherhood of Dinkey Engineers" that the writer has seen is the circular above quoted. It is possible no such organization exists, the scheme being to bleed those enginemen who are always looking for a chance to "knock" the old brotherhoods. If this is the true status of affairs little harm will be done.



WHAT THE LATEST INJUNCTION MEANS TO WABASH RAILROAD EMPLOYES

(From Boyce's Weekly)

♦ ♦ ♦

Blacklisting Employes.

From the Chicago (Ill.) Inter Ocean of May 6, 1903, it is learned that the Association of Railway Claim Agents will, at its annual meeting at Niagara Falls, June 3 to 5, 1903, discuss what is considered a most important question, which is the blacklisting of employes discharged for cause. The following queries

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which were submitted at the last meeting of the Association will be dealt with in a report by a committee to the coming meeting:

"Can a number of railroad companies lawfully combine to create and operate a bureau whose purpose shall be, among other things, to secure from, and furnish, solicited or unsolicited, to each road a record of the services of such employes as have been discharged or have left the service under circumstances making their continuance in railroad service objectionable or undesirable, and how can such a bureau be organized and managed to produce the best results?

"If not practicable to operate such a bureau themselves, should railroad companies become members of a bureau organized by outsiders for the purpose of disseminating information in relation to claims and claimants?"

♦ ♦ ♦

What Constitutes "Lawlessness"?

One of our most valued technical exchanges is Railway and Engineering Review, which, however, is favorable to government by injunction, so long as judges are partial to the employer. In a recent number the following appears:

"A court at Racine, Wis., has made permanent an injunction against picketing and other riotous measures aimed by strikers against a manufacturer. The courts all over the whole country seem inclined to grant protection against this kind of lawlessness."

It will be noticed that the journal quoted (1) classes "picketing" as a "riotous measure;" (2) that "picketing" is classed as "lawlessness;" (3) that court injunctions against "picketing" are approved.

Picketing is simply persuading or attempting to persuade men who have taken strikers' places to quit work or join the strikers, and is usually done by strikers who station themselves in public thoroughfares where it is known that the men who have taken their places will pass. How can such acts be "riotous" unless accompanied by violent measures, which are not a part of picketing? How can picketing be classed as "lawless" when it is not in violation of any law? Why should a judge issue an injunction that forbids a citizen doing that which the law gives him a right to do?

If a striker has no right to accost another and persuade him to leave the service of an employer, then the representative of one railway company has no right to persuade a merchant to cease shipping his freight over a competitor's road, and an employer has no right to persuade a striking employe to desert his fellow strikers.

The only reason that injunctions are directed against servants and in favor of masters in labor disputes is that the masters have always dictated who shall be the judges; in fact, most federal judges are but creatures of the master class. Suppose some day the working people are able to renounce their vassalage to political parties, and by force of numbers elect members of legislatures, members of congress, governors, and presidents from their own class—and suppose they secure the appointment of judges who will be as partial to the servant class as the present judiciary is to the master class—and suppose injunctions are then issued that forbid the employers persuading strikers to desert their fellow strikers, and forbid them doing many things that the law allows them to do—will the journal quoted class such acts of the employers as "lawless" and applaud the courts for governing the country with injunctions? I guess not.

♦ ♦ ♦

Canadian Judges Hate Workingmen.

If any person supposes that it is only in the United States that scabs are objects of endearment, or "servants" are hated by judges, they are mistaken. Wherever the employing class runs the government the judges are always found manning the artillery of the Patrician army. The Canadian Labor Gazette, in quoting a recent decision of a police magistrate in Toronto, says:

"McGann is employed as a moulder at Gurney's foundry, which is a non-union concern. On coming out of the works one day he was met by Joseph Ferguson, who called him a 'scab' and other names. A charge of intimidation was laid against Ferguson, who pleaded guilty. He was fined $75.80 and costs or sixty days in jail."

Then here's another decision of the Pretorian Guard, quoted from the same authority:

"At Winnipeg, the C. P. R. Company brought an action against one of its employes who went out on strike on March 16, on the ground of desertion of employment. After the case had been enlarged several times, judgment was delivered on Monday, the 30th, when the striking clerk was fined the costs of court, the magistrate holding that, while there might be no explicit contract, all the surroundings, method of payment, etc., pointed to an understanding on the part of the men and the company that it was a monthly engagement."

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Court Decisions

Defective Engine—Promise to Repair.

B. F. Garren was a locomotive fireman in the employ of the Gulf, Colorado and Santa Fe Railway Company. His run was from Cleburne to Purcell, and from Purcell back to Cleburne. One day while on the eve of pulling out of Purcell it was discovered by him and the engineer that one of the iron steps on the engine used in getting on and off the engine was out of repair. The engineer attempted to fix it, but could not, for the want of proper tools. He said to the fireman: "I'll turn it around under the engine. I'll have it fixed." He did turn it under the engine and tightened it in that position. The train pulled out of Purcell and reached Gainesville about sundown, and stopped twenty-five minutes for supper After leaving Gainesville and nearing Saginaw, the fireman noticed some sparks flying from under the engine trucks. When the engine stopped at crossing of the Fort Worth and Denver City Railroad he got out to see what it was. Some pieces of waste had caught fire. He reached under and pulled it off and the engineer started the train. It was moving slowly and, when the gangway reached the fireman, he reached up, caught hold of the hand holds, and placed his foot on the step, which turned, causing him to fall, resulting in the injuries alleged. The engineer was superior to the fireman, and the fireman worked under his directions, though the engineer had no right to employ or discharge. When out on a trip, it is the duty of the engineer to inspect and keep his engine in repair, as near as he can. When the engine reaches the terminal, which was Cleburne in this instance, it is the duty of the engineer to enter upon the roundhouse register any defect, if any, that it may be repaired there. There were train inspectors at Gainesville, but their duty was only to inspect cars, not engines. It was the custom not to have defects repaired at Gainesville unless such defect interfered with the running of the train. When there is a defect that the engineer desires fixed at Gainesville, he wires ahead for some one to fix it. He did not wire in this instance. The train stopped at Gainesville long enough to have had the step repaired, but it was not done. The fireman, at the time he was hurt, supposed that the step had been repaired at Gainesville. He was not guilty of contributory negligence.

In an action against the company for damages on account of the injuries, Garren recovered a judgment. This has just been affirmed by the Court of Civil Appeals of Texas, its conclusions of law being as follows:

"1. The evidence showing that it was the duty of the engineer to inspect and repair, or have repaired, the said step, and that the fireman was working under his directions, his promise to have said repairs made was the promise of the defendant, and the fireman was warranted in regarding it as such. Railway vs. Bingle, 16 Tex. Civ. App. 653, 41 S. W. 90.

"2. Appellant insists that as Cleburne, under the custom shown, was the place where repairs were to be made, the plaintiff was not warranted in relying on the promise to repair before the engine had reached there, and that he assumed the risk by continuing at work, knowing of the defect in the step. When the master is apprised of the defective condition of machinery with which a servant is working, and the master promises the servant to repair the defect, the servant does not assume the additional risk arising from the defect by continuing in the employment, if he has reasonable grounds to believe, and does believe, that the master will fulfill his promise, unless the danger is such that a man of ordinary prudence, under all the circumstances, would not continue in the service. Railway vs. Bingle, (Tex. Civ. App.) 29 S. W. 674; Id., 91 Tex. 287, 42 S. W. 971. When a promise is made by the master to repair, on which the servant is warranted to rely, the servant is at once relieved of the assumption of the additional risk arising from the defect until the master has had reasonable time and opportunity to repair, after which, if the repair is not made, and he continues in the service, knowing this, he assumes the risk. But if the time and opportunity to repair are passed, and the repair is not made, and he continues to work, not knowing it has not been made, and is injured, then it can not be held that he assumed the risk. The charge of the trial court on this phase of the case was not error, and the evidence is sufficient to support the finding of the jury."

73 S. W. Rep. (Tex.) 1028.

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Recognition of Union.

It would seem from the following opinion just rendered in the Appellate Division, Supreme Court of New York, that a labor union can not use the boycott or strike as a means of forcing recognition of its organization:

"The plaintiff is a master painter, and in July, August and September had contracts for doing certain work in painting and decorating a building located at 987 Fifth Avenue, and also on the Church of New Jerusalem, in the city of New York. The defendant association, the Amalgamated Painters and Decorators of New York, is an unincorporated labor association of expert journeymen, painters and decorators in such city, of which the defendant Callanan is the president, and the defendant Healy one of the business representatives, commonly called 'walking delegate.' This action was brought to enjoin and restrain defendants from doing certain acts threatened to be done, which, it is alleged, if permitted, would seriously interfere with the property rights and business of the plaintiff, and by reason thereof cause him serious damage. A preliminary injunction was granted, ex parte, restraining the defendants from committing the acts complained of, with an order to show cause why the same should not be continued during the pendency of the action. Upon the return of the order, the preliminary injunction was vacated, but on appeal to this court that order was reversed, and the injunction continued during the pendency of the action. 67 App. Div. 14, 73 N. Y. Supp. 518. Upon the trial, notwithstanding that the plaintiff established by competent proof the material facts set out in the papers upon which the preliminary injunction was granted, the court dismissed the complaint upon the ground, as appears from the decision made, that the case could not be distinguished, 'in principle, from National Protective Association vs. Cumming, 170 N. Y. 315 [63 N. E. 369, 58 L. R. A. 135, 88 Am. St. Rep. 648],' and the plaintiff has appealed from the judgment subsequently



UNCLE MARK'S TASK

(From Pittsburg (Pa.) Gazette)

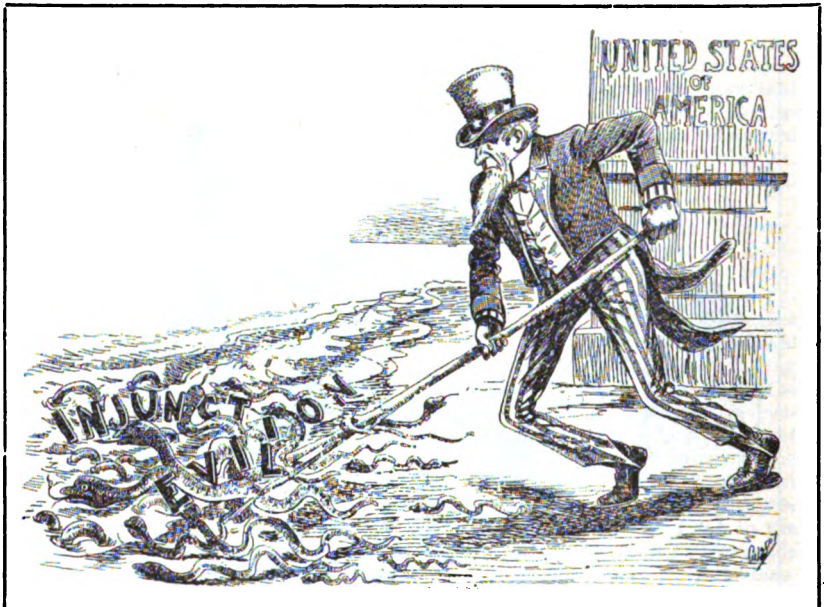
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entered dismissing the complaint on the merits.

"The judgment must be reversed. The facts established at the trial do not bring this case within National Protective Association vs. Cumming, nor has the principle there announced any application whatever. On the contrary, by reason of such facts, the case comes squarely within our former decision, and the principle laid down in Curran vs. Galen, 152 N. Y. 33, 46 N. E. 297, 37 L. R. A. 802, 57 Am. St. Rep. 496. The question presented in National Protective Association vs. Cumming was one between two rival labor organizations, and the court held that a labor union did not commit an unlawful act by refusing to permit its members to work with fellow servants who were members of a rival organization. In Curran vs. Galen the question was whether a labor organization had the right to procure the discharge of an employe because he would not become a member thereof. The Court of Appeals held that a labor union had no such right, and in so holding the court (in which all of the members concurred) said:

" 'Public policy and the interests of society favor the utmost freedom in the citizen to pursue his lawful trade or calling, and if the purpose of an organization or combination of workingmen be to hamper or restrict that freedom, and, through contracts or arrangements with employers, to coerce other workingmen to become members of the organization, and to come under its rules and conditions, under the penalty of the loss of their positions and of deprivation of employment, then that purpose seems clearly unlawful, and militates against the spirit of our government and the nature of our institutions. The effectuation of such purpose would conflict with that principle of public policy which prohibits monopolies and exclusive privileges.'

"Here the sole question is whether the defendants, because the plaintiff would not in a formal way recognize the association, or for an alleged affront to its walking delegate, have the right to maliciously cause parties who have entered into contracts with him to deliberately break them, by means of threats to cause, or actually causing, a strike of all the workmen in the employ of such parties. That they have not such right was clearly and unmistakably announced on the appeal from the order vacating the preliminary injunction; the court then saying that the case furnished 'no authority for a resort to fraud, intimidation, force, or threats,' except within the limitation

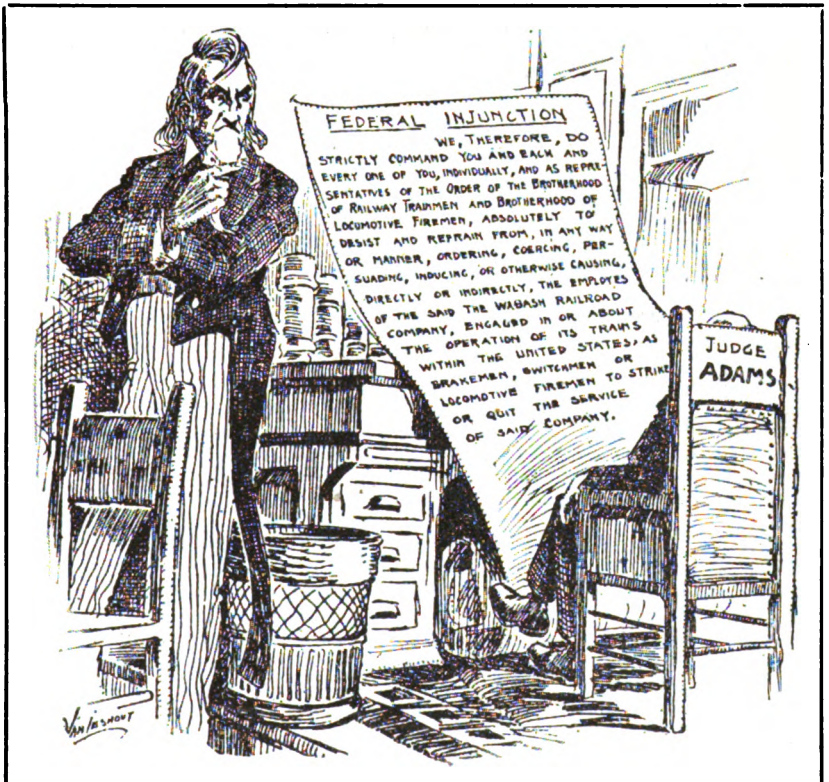


SWEEP 'EM OUT, UNCLE SAM! THIS IS A GOVERNMENT "OF AND BY THE PEOPLE"

(From Denver Post)

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announced in the Cumming case, 53 App. Div. 227, 65 N. Y. Supp. 946, and that, upon the facts then presented—and the facts established upon the trial were even stronger than those were—'the plaintiff was entitled to an injunction restraining the defendant from interfering in any manner with the business of this plaintiff by resorting to intimidation, force, or fraud, or by such acts injuring the business of the plaintiff, or preventing the



IS THIS RIGHT OR MIGHT

(From Chicago Inter-Ocean)

caused James C. Hose Sons to deliberately break their contract; and, if the plaintiff should procure other contracts, it is quite apparent that the same methods will be resorted to, as in the two instances stated, to induce parties contracting with him to violate their agreements. This was done, and in the future is threatened to be done, not because the plaintiff refused to employ union labor, or to pay union wages, but simply because, according to the uncontradicted testimony of the defendant Callanan, the plaintiff refused to recognize the representative of the union, or 'the union in any way.' The methods here employed to compel the plaintiff to accede to the demands of the defendants are unjust, unreasonable, and such as the law does not recognize and will not tolerate. As well might the defendants resort to physical force to enforce alleged rights or redress real or imaginary wrongs. It clearly appears that they were actuated by im-

members of the defendants' organization from working for the plaintiff, or preventing other men employed by him from working for the plaintiff, or upon any contracts with which he is connected.'

"The defendants, by causing a strike of all the workmen engaged on the building at 987 Fifth Avenue, caused Leeds, through his representatives, Hunt & Hunt, to deliberately break the contract which they had made with the plaintiff, and, in causing a general strike upon the work at the New Jerusalem Church,

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proper motives and by a malicious desire to injure the plaintiff; and, this being so, the plaintiff was entitled to relief, within all the authorities to which our attention has been called.

"Upon a careful consideration of this record, we are of the opinion that an injunction should have been granted to the extent indicated on the former appeal, and that the court erred in not so holding. The judgment appealed from, therefore, must be reversed, and a new trial ordered, with costs to the appellant to abide the event. All concur."

Beattie vs. Callanan et al., 81 N. Y. Supp. 413.

Contributed

Washington Gossip.

By Eva McDonald Valesh.

Official Unrest in Washington.—With the President away and Congress not in session it might be supposed that Washington would be a very quiet place at this time of the year.

It is certainly a most beautiful city, for the Government keeps a succession of flowering plants blooming in all the squares and circles which make the capital of the nation very like to some of the continental cities.

The White House has ample grounds and the flower beds and fountain in the Presidential front yard are the source of much pleasure to those of us who see them every day, as well as the tourist who must perforce take a hurried glance and away.

Just across the street from the White House is Lafayette Square, with its masses of blooming flowers and all sorts of trees.

I heard a dear old lady telling a visitor the other day that Lafayette Square had in it specimens of more than one thousand varieties of trees and that among them was a real cedar of Lebanon. Maybe, but the forest doesn't look quite that thick.

But amid all this natural splendor which mingles so joyously with the artificiality of city life, there is a seething, bubbling caldron of official discontent and anger and fear and trembling.

Of course, the postoffice investigation is a familiar news topic, but one needs to be in Washington to see and hear certain curious phases of the investigation and to note how it affects people.

The postoffice being our one general utility that is managed for the people by the Government, we of the labor world are all a little more interested in its progress than we would be in some department which would be purely that of the Government. This investigation is not likely, however, to yield anything of permanent value.

There isn't much doubt but the postoffice department has been run upon a most lavish, not to say extravagant, scale for many years past.

In addition the regulations and red tape have grown more exasperating every year. The publishers of books and periodicals have grown to dread having any dealings with the department on account of the arbitrary rulings by heads of departments.

In many cases they seem to have enacted a law whenever it suited their caprice regardless of the rights of the public or the fact that Congress is power which makes the laws.

But these things are not the subject of investigation nor is the railway mail service being queried. Yet in the rates paid to railroads for hauling mail comes one of the greatest and apparently most inexcusable expense of the department.

There is no reason why the railroads should be paid double and triple for hauling mail when it is a class of material compactly and readily handled.

No reasonable citizen would object to a fair rate, but the railroads get an enormous sum, out of all proportion for the service rendered. But as I said before, this piece of extravagance is not under investigation.

In Washington it is the general opinion in well-informed circles that the whole investigation arose out of personal rivalry between Mr. Machen, of the rural free delivery department, and First Assistant Wynne.

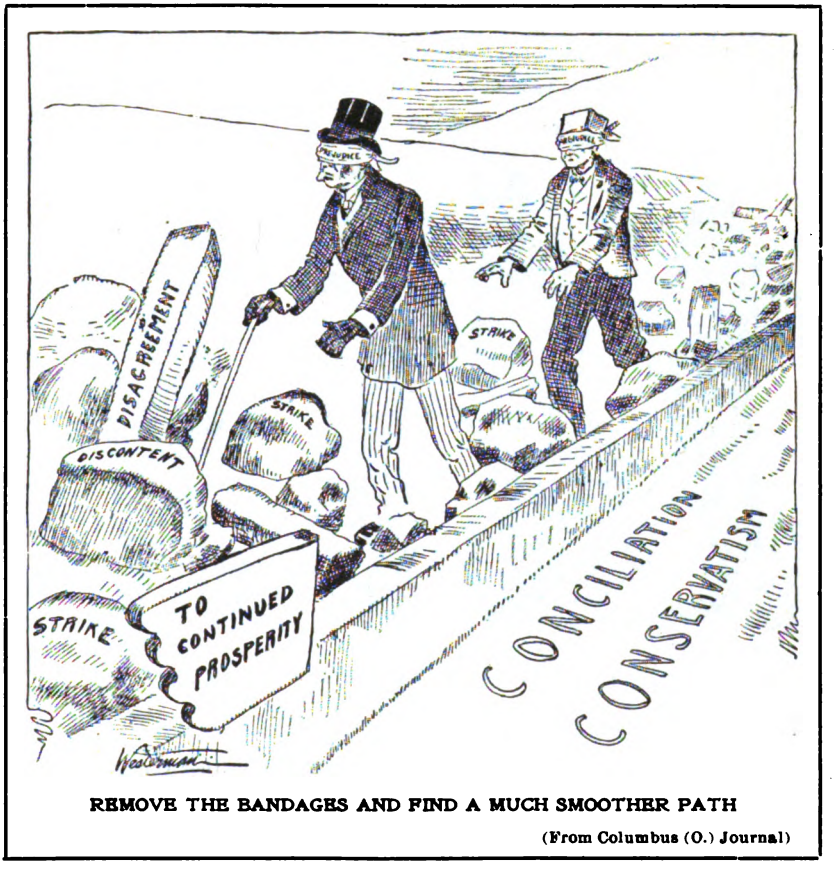
They are both good fellows, but there is no question but the rural free delivery branch of the service has been mighty convenient as a place for congressmen to dump office seekers, who had no very remarkable qualifications for official work.

It must be remembered that the bulk of the clerks in this division were appointed

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without a civil service examination—or any test as to qualification—and then neatly covered into the classified service by the enactment of the last Congress which put them under civil service rules without examination.

I am by no means an unqualified admirer of civil service as at present conducted, but at the same time it is one of the farces of official Washington when the incompetents are safely herded into the classified fold as in this case—it is not the only one, by any means.



REMOVE THE BANDAGES AND FIND A MUCH SMOOTHER PATH

(From Columbus (O.) Journal)

To illustrate: I happen to know of a most worthy young lady of good family who found herself at the age of 30 suddenly obliged to earn her own living. A three months' course at a shorthand school sent her out to worry the life out of the average private employer with her well-meaning but hopeless incompetence.

I procured her two situations, one under my own observation, and was reluctantly forced to admit that no matter how worthy a person, she was emphatically a failure either as a stenographer or an ordinary clerk. She failed to hold even a $9 a week place as a clerk.

So the lady hies herself to influential friends and gets appointed as a stenographer in the rural free delivery division at $75 a month as a starter. She has been there now about a year and a half and is in the classified service and gets $1,200 a year. Mind you, she is now certain of this salary for the rest of her life. She couldn't by any possibility pass an ordinary test as a stenographer, let alone that fearful and wonderful ordeal known as a civil service examination for such a position.

Knowing the lady's misfortunes I took some interest in her progress. She has always maintained rather an injured air to me since being appointed into the Government. She gives me to understand that she is much better than some other clerks who are drawing the same salary

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as herself, and she evidently thinks that private employers were downright exacting and unreasonable.

So the rural free delivery department has been a safe haven for many a poor lady who could command congressional influence in lieu of competence as a clerk. This, of course, is not a matter under investigation. Mr. Machen, the head of the department, was a great help to overburdened Congressmen, who always have about a hundred applicants for every place they can give out.

Apropos of this I note that an influential paper, published in Chicago, suggests that the aforesaid women clerks who get appointments by influence, not merit, are in many cases ladies who own automobiles and wear diamonds and live in gorgeous apartments and all that sort of thing, and that they are a sore trial to the competent clerk who has no influence but depends on her salary for her livelihood.

This is not true. There is no need to make the case any worse than it is.

The type of woman who, by some means or other, commands congressional influence and wears fine raiment and fares sumptuously either as a direct or indirect result thereof, is in the first place, a much more *rara avis* than is supposed outside Washington.

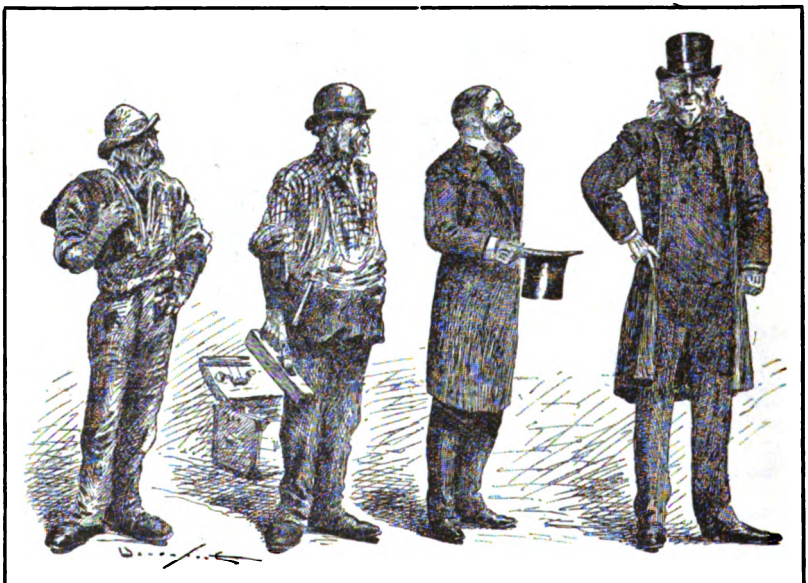
There are persons pointed out as being in that category, but bless you, they don't go through the form of toiling in a stuffy Government office for six and one-half hours per day.

They are "lobbyists," or what not, but they do not bother to pretend to be Government clerks.

It is true that the competent clerk who depends upon merit for promotion has often to see her incompetent sister clerk get on faster than she on account of congressional influence, but incompetence is about the worst that can be alleged about women in Government employment.

To be quite frank about it, most of the women clerks are neither young nor handsome. They do not dress in style. They are anything but coquettes. Notwithstanding all the fairy stories to the contrary, I know of no more depressing sight than the procession of women clerks who file out of the Government buildings in Washington every day at four in the afternoon.

In spite of comparatively pleasant employment and salaries which average three times what they would get in the business world, they all have a certain stamp of dull, hopeless, grinding routine written upon their faces, and in their very carriage they look more like prisoners condemned to a treadmill than the excep-



EACH MAN LOOKS AWAY FROM THE MAN BELOW HIM

(From Chicago American)

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tionally favored employes of our great Government.

I do not pretend to say why this is; but I do know that even the factory employes of a big industry present a far more cheerful and animated appearance.

And now there is the greatest anxiety for fear some turn in the pending investigation will turn out hundreds of these women appointees upon a cold world where they would have to compete for employment on their merits. .

About the only people who can pass are the type of young people who stand away up in school examinations—and are never heard of after.

It does not matter how well informed and competent for the work, no person ten years out of school can hope to pass the present civil service examination. Except—of course there always is one exception.

It will be remembered that the census applicants were required to pass a quasi-



Picked up on the highways, he is furnished with a disguise and a gun, and then sent forth to pose before the public as an "honest workingman" out of a job, who desires to toil in order to pay off the mortgage on his "little home," and to have leisure—but not too much leisure—to read tracts on the evils of intemperance and the tyranny of trade unions

THE METAMORPHOSIS OF A STRIKE-BREAKING "INDEPENDENT" WORKINGMAN.

(From Boyce's Weekly)

It is useless to remind them that they are perfectly safe as classified employes under civil service. The ghost of possible dismissal haunts the very dreams of the woman Government clerk.

This desultory chat on women *out of economics* and also outside the home reminds me that the latest civil service report shows that 60 per cent. of the applicants passed the examinations last year and only 25 per cent. of the successful ones actually received appointments.

The examination concocted by the Civil Service Board is a most marvelous creation.

civil service examination. I assure you it was not one-tenth as formidable as the real thing, but it was bad enough, and the poor applicants went down under it like daisies under the scythe in summer.

This was convenient for overburdened Congressmen. It was not their fault if their constituents who wanted places failed to qualify.

But I am reminded of the case of a friend of mine, a middle-aged woman of excellent business training and high intelligence.

She failed to pass; but a shrewd friend whispered to her that one of the high-

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class census appointees was conducting a "cramming" school in private for just such people as she.

She went to the school, literally "crammed" and passed the next examination practically letter perfect.

"I couldn't help passing," she said, "the questions were so near like what I was taught at the school where I 'crammed.'"

This woman made a most excellent record from the day she was appointed, and at the close of the work was retained in the permanent service as one whose value had been well tested.



NOT A GOOD TIME TO QUARREL

(From Harper's Weekly)

It may be that the "cramming school" for the census was an emergency measure, but I hear it softly whispered that in Washington you can get "coached" for any civil service examination, and it is wise to do it if you have the necessary influence to secure prompt appointment after passing the ordeal.

I really don't know just what conclusion to form as to whither we are drifting, but as a spectator of the passing show it strikes me that Washington official life is a very interesting and somewhat unusual sight for the student. Had I space I would like to tell of the social life in clerical circles. It is all unique.

Labor Legislative Work in Texas.

The Editor has requested me to send him for publication in the Magazine, a report of my work done in Austin during the regular and called session of the 28th Legislature. I will endeavor to be brief with this, as members in Texas will soon receive a full and complete report prepared by the Joint Legislative Board, of which I have the honor of being a member. This board was composed of the following named gentlemen: J. A. Lawson, representing the B. R. T.; R. J. McCool, representing the B. L. E.; Ed. B. Willis, representing the O. R. C.; Walton Peteet, representing the Texas Federation of Labor, and the writer, representing the B. L. F. Near the close of the regular session we were strengthened by the addition of O. E. Petty, representing the O. R. T. From the beginning harmony prevailed among all the members. We accepted as being only too true the old adage that a "divided house can not stand."

The net result to labor of the session is seven bills passed directly benefiting us, two bills aimed at us killed in committee, and one measure thought to be inimical to our interests (the so-called anti-

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trust law) passed. Following are the bills championed by labor, five of which are now on the statute books of Texas:

Child labor law.
Sixteen-hour continuous service law.
Street car vestibule law.
Law requiring two openings or outlets to all underground mines.
Law against coercion and blackmailing for refusing to trade at company store or commissary.
Barber bill.
Derail and switchlight bill.

The measures successfully opposed by labor were:

Bill to require all persons suing for personal injuries to exhibit his or her person as often as required by opposing counsel.
Constitutional amendment to repeal exemption of current wages from garnishment.

The "child labor law" prohibits the employment of children under 12 years of age in any factory or manufacturing establishment using machinery; children between 12 and 14 years are forbidden to work at night, and only such children between those ages as can read and write simple sentences in English are permitted to work in day time. It has this provision, that when a child has a widowed mother or parent who is incapacitated to support it, or when such parent is incapacitated from earning a living and has no means of support other than the labor of such child, it may work between the hours of 6 a. m. and 6 p. m. All children under 16 years are prohibited from working in any mine, brewery or distillery.

The "sixteen-hour law" makes it unlawful for any railroad company to require or permit any conductor, engineer, fireman, brakeman, train dispatcher, telegraph operator or any trainman who has worked in his respective capacity for sixteen consecutive hours to again go on duty or perform any work until he has had at least eight hours' rest, except in case of casualty.

The "street car vestibule law" compels all street car companies to have their cars equipped, during the period beginning November 15th and ending March 15th, of each year, with a screen or vestibule to protect the motorman.

In connection with the passage of this humane measure, I wish to relate an amusing—I might say providential—incident that occurred. The bill was referred to the Committee on Internal Improvements in the Senate, and the street car companies made preparations to defeat it in committee. Able lawyers prepared an argument urging that in this mild climate such legislation was unnecessary. The day arrived to consider this bill and found the earth covered by several inches of snow and ice, our "mild climate" far down below the freezing point, a cool cutting north wind blowing and our opponents "absent, unexcused."

The law requiring two openings or outlets to all underground mines and the law against coercion and blackmailing for refusing to trade at company stores, speak for themselves, and I will not comment on either here.

Passing to measures where we fought on the defensive, I will first take notice of the bill to require all persons suing for personal injuries to exhibit his or her person as often as required by opposing counsel. We considered this bill a scheme to manufacture evidence in all personal injury cases, should it become a law. It was drafted by the general attorney of one of the large railroad companies of Texas.

I am pleased to say that it died in the committee room.

The joint resolution that was introduced in both the House and Senate, looking to the repeal of the constitutional provision exempting current wages from garnishment, made things interesting for us until it was withdrawn. Resolutions, with 70,000 signatures from every part of the State, were sent to the members of the Legislature, favoring this measure. It was fathered and set on foot by a large collection agency, with branch offices in all of the large cities in Texas. A more vicious piece of class legislation could not have been started. Had it become a law, it would have forced railroad men to pay unjust and disputed claims. They would rather do this than be discharged, as all railroad companies have a rule that when a writ of garnishment is served on them for an employe it is cause for discharge. Ofttimes sickness and other misfortunes overtake workingmen, and their wages are not sufficient to pay everything promptly, then it would be that a heartless and unscrupulous dealer would have them at his mercy; and could not only cause them to lose their positions, but drive them out of the State, should they desire to continue railroading. I will pass over other iniquitous features of this measure, and tell of its defeat. Had not the retail merchants wanted their occupation tax law repealed at this session, it might not have been so easy to kill it. And, too, the prompt protests of the wage-

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workers had great weight. However, I believe this measure will come up again, perhaps at the next State Democratic Convention, where our enemies will try to make it a platform demand. Moral: Go to the convention as a delegate.

We made every effort to amend the anti-trust law so that labor unions would not be included. Circumstances, however, were against us in many ways. It was a Democratic platform demand—and that in Texas is "scripture"—a popular demand, and an administration *command*, that an anti-trust law be passed. With Governor Lanham and Attorney-General Bell loudly proclaiming that the bill did not affect us, that our amendments were useless and unnecessary and might injure the bill, with intimations that the corporations were using us as their tools (when in fact they were well pleased with it and offered no objections), and last, but not least, the administration "whip" being used freely, one can not wonder at the outcome. Time will tell whether this law, in its defining clause, makes a trust out of labor unions, and whether the labor law passed in 1899 that gave us the right to organize and strike, is repealed or not. Let us accept for the present the published opinion of Attorney-General Bell that we still have the right to organize and protect our rights.

It will be observed that while seven labor bills were passed by the 28th Legislature, only five became laws, this is because the Governor vetoed two, the barber and switchlight bills. Both were passed practically by unanimous vote, and both were in response to a strong demand by the wage-earners of the State.

A careful examination of the veto of the barber's bill would seem to indicate that the Governor acted upon it before he had carefully read and studied the bill, because among other reasons mentioned in his veto is an objection to requiring a man to stand an examination before he can engage in the barber business, when in point of fact there was no such requirement in the bill, this provision having been stricken out before the bill passed the House. The veto loses none of its effectiveness on this account, however.

The veto of the switchlight bill has shocked and surprised everybody, and on every hand is heard expressions of amazement and wonder. This bill simply requires railroads to keep signal lights and derailing switches on main line switches to prevent accidents. The representatives of the railroad companies told our committee that it was a good bill, and after it had been amended so as not to apply to railroads that do not run night trains, the railroads made no objection to the bill.

The Governor gives three reasons for vetoing the bill:

1st. That it is impracticable.

2d. That it is unnecessary; and,

3d. That the benefits will not warrant the expense.

And he is wrong on all three. The fact that the Cotton Belt, one division of the Southern Pacific, and probably other roads in Texas, have already voluntarily done all that was required by the proposed law, is a sufficient answer to reason No. 1. If the Governor had taken the trouble to acquaint himself with the number of accidents and loss of life caused by lack of these safety devices, I don't think he would have relied much on this point. The cost is trifing, and in fact by the prevention of accidents actually results in a saving to the company. And then, too, the railroad companies did not object on the score of cost, and thus we have the Governor vetoing a bill in order to save the railroads an expense they did not object to incurring.

There will be accidents in Texas this year and in the year to come caused by the lack of a warning signal at switches and also by the lack of a derail switch to keep loose cars breaking away and rolling out onto the main line. And lives will be lost and strong men will be maimed and crippled, and Governor S. W. T. Lanham will be morally responsible for every life lost and for every person maimed or crippled. It's an awful responsibility he has taken upon himself.

The Governor's action upon the mine bill is also surprising. This bill requires all underground mines to have two openings, so that in case of accident to one shaft the workmen may have an avenue of escape. A reasonable time is given mines already in operation to comply with the law. It would seem that there could not be two opinions of this bill, yet the Governor refused to approve it and permitted it to become a law without his signature.

I desire to urge the importance of the following: 1904 being general election year, pay your poll tax before February 1st.

Attend and demand recognition at precinct, county and State conventions. Be there and help shape your party's policy.

See candidates for the Legislature before the primary election, and find out their position on labor questions.

In conclusion, I wish to say to those

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members who have from time to time rendered me such able assistance at Austin, I tender you my heartfelt thanks.

JOS. S. MYERS,
Chairman Legislative Board B. L. F. of Texas.

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Mr. Parry and His Anti-Union Association.

There is an old saying that "it is waste of lather to shave a jackass," but I believe that once in a while it becomes necessary to do this kind of a job. To criticise the utterances of some men who advocate radical ideas on certain questions is to advertise them. I don't care about giving prominence to some people by paying very much attention to what they say or do. The better plan is to go ahead about your business and leave them entirely alone. This is one time, however, when I am going to take to task a man by the name of D. M. Parry for his recent attacks on organized labor. The Associated Press of April 15th said that this man Parry, who is said to be President of the Manufacturers' Association and hails from the great State of Indiana, and whose home is in the city of Indianapolis, did say in the city of New Orleans, La., on April 14th, that the labor organizations of this country were a menace to good government and a detriment to any community, and that the members of these labor unions were awful bad people. Why! he went so far as to say that the members were anarchists, socialists and dynamiters. Now wouldn't that jar you? Just think to what extent this individual must have worked up his feelings in order that he might make such a false statement. It is a wonder to me that, with the Mississippi River so high in New Orleans, this erroneous statement did not cause a break in the levee.

The Associated Press says that when Parry came to the platform to speak to the members of the Manufacturers' Union, six hundred men arose from their seats and cheered until they were hoarse, and it was several minutes before the speaker could proceed. When he did talk, he turned loose one of the most radical speeches against organized labor ever recorded in any newspaper in this country. His talk was so abusive, irrational and illogical, that he has called down upon himself and the association that he represents the honest condemnation of all good citizens, and the press of the country has not failed to tell him of the serious mistake he has made in trying to fight organized labor when he, himself, is at the head of an organization whose sole object is to get labor as cheaply as possible. That his listeners were of the same stripe as himself, is verified by the fact that his utterances met with their approval. Had it been otherwise they would not have gone wild when he threw shot and shell into the labor organizations of this country.

Parry says, so says the Associated Press, that we (meaning the Manufacturers' Association) defeated the Eight-Hour Work Day Bill that was introduced in the last Congress, as well as the bill that would give a trial by jury in an injunction case. He made no allusion, however, as to what it cost his association to defeat these two measures. It cost them something, that is sure, because there was not one candidate for Congress who would have dared to have said before election that he would vote against any measure that labor wanted. Something turned many of these men who pledged labor before election what they would do when they got to Washington, D. C. I will leave the reader to infer what did the work.

I have heard of Parry before, through the Associated Press, and he has always been spoken of as being a bitter opponent of organized labor. There is no doubt about it now, as he has been as bold with his utterances as he has been unreasonable. This modern "Goliath" came into the arena too late to do much harm. He should have lived in the days of Nero, as he could have howled while Nero fiddled at the burning of Rome. One thing he did was to choose a timely place in which to speak. He went down into the South to talk to the manufacturers, where white firemen have to compete with the negroes, where the wages are unusually small—a little more than a dollar per day. Yes, and where the manufacturers have babies in the mills and factories; where these little ones toil twelve hours, either day or night, for the magnificent sum of ten cents.

Yes, you, Mr. Parry, should feel proud of the work you are doing in trying to crush organized labor. Should you be able to do so, the manufacturers of the country would not be troubled about who worked in the mill or factory, how long, or at what wages. Since you made that bombastic speech in New Orleans, I will wager that labor will organize faster in the South now than ever before. There are just as true and faithful working people in the South to the cause of organized labor as any place on earth. That they

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will get away from some of the conditions that are a menace to their welfare is sure. I know how employers have treated their employes in the Sunny Southland, and am sure that they can become Past-Masters of the Manufacturers' Association upon admittance.

Now, Parry, come North, and you will be greeted by more than six hundred vultures. Yea, six thousand, if you please, and these same people who sing your praises prefer children wherever they can use them, because they can get the services of the child for much less than the grown person. Let not the reader for one moment believe that the South is the only place where children under fifteen years of age are at work and denied the right to go to school; for every child that is working to earn money in the South, ten work under like conditions in the North, and this is what organized labor wishes to put a stop to, and that is, children at work under fifteen years of age. We claim that school is the place for the child and not the wage-earning field. As the remedy for this evil can only be applied by organized labor and a cure effected by the same agency, we hear the cry from the Wolf, "Look out for the labor agitator, who is a dynamiter, anarchist and socialist."

When short of reason and facts, the average member of the Manufacturers' Association uses abuse for argument. They have no other stock in trade other than abuse and lying.

To advocate that every child shall be sent to school until at least fifteen years of age, that the doors of employment shall be closed against them, that in case of a widowed mother who would have to depend upon the services of the child the State step in and care for these people; if this doctrine is "anarchism," it will have to go at that. Children are not to blame for being born, and if misfortune overtakes parents to the extent that the services of the child shall be called in to help make a living and deny it the rights of an education, it would be a thousand times better for the State that the child be brought up right than to have its mind and body dwarfed by toil, that the Creator in his wisdom never intended it should be so.

If man was an unselfish being, he would in short order change industrial conditions by seeing that those who can work be made to do so, and that those of misfortune be cared for. The present system of carrying on the business of the world is so handled that the unfortunate have no opportunity to rise out of the slough of want and misery.

There is no way in this wide, wide world of ours to change the present industrial conditions outside of organized labor. Such men as Parry have done little else than keep the laborer dependent instead of letting him become independent. It is now 1900 years since the Prince of Men trod the earth, and it was much the same then as now—working people trying to get ahead by hard work and economy, and the man of means holding them back. More has been done in the last twenty years to better the condition of laboring people through and by their union than was done in 2,000 years prior to that time by the individual. This assertion can not be denied; it is facts and can be proven. That it becomes necessary to strike sometimes, is true. If the laborer can not get a wage to remunerate him without resorting to a strike, why, then, strike. If it takes a strike to jar loose an honest day's pay for an honest day's work, why strike, of course. If capital will not pay the wage-earner what he is entitled to, there is nothing else to do but strike. Labor is the creator of all wealth and it comes first in every instance for its share. Without labor capital would famish for nourishment, as does vegetation for the want of moisture. Judge Adams, of the United States Court, said in handing down the decision in the Wabash injunction case that labor had a right to organize, and had a right to strike to enforce its demand. Judge Caldwell, in 1893, when passing upon the controversy that took place between the Receivers of the Union Pacific Railway and the employes of that line, said that organized labor consisted of brain and muscle, that organized capital consisted of money and property, and what was legal and lawful for one to do was legal and lawful for the other to do; that while the Union Pacific Receivers claimed that they could not pay the present wages on account of the depressed business, and as the depressed business was felt by the employes as well as the management, that perhaps the employes could not afford to work for any less wages than they were already receiving.

In each instance that I write about, when the questions at issue were up before these learned judges, the members of organized labor were called all kinds of names that were anything but complimentary, but it availed the opponents of organized labor nothing. The judges knew that there were no anarchists among those people.

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At no time have we ever advocated the destruction of property. We know we can win without resorting to such an extreme measure as that. Parry likens organized labor to anarchism. Let us see whether the doctrines are alike. Labor organizations believe in law and order. Anarchism is a doctrine that teaches and believes that each individual should be a law unto himself. Socialism is as much different from anarchism as day is to night. The socialist believes that everything should be governed by law, and that all should share in the blessings of life, and not the few at the expense of the many, as is now the case.

The late unpleasantness between this country and Spain, proved the loyalty of the laboring people to their country and their country's cause. When war broke out, members of organized labor shouldered a gun and marched away to fight for the starry flag. They left behind all that was dear to them in this life. I am sure the incentive was not money, for those who went to war left good positions behind, accepted a small salary from the Government; many came home with a total and permanent disability, and many others never returned but are now in the great beyond. The laboring man was far more patriotic in the late war than was the wealthy man. At the time war was declared our navy was poorly supplied with transport ships. It almost became necessary for the Government to take by force for her use in this war some of the merchant ships that were owned by corporations in this country. When buying vessels, the Government had to pay a large price for the ship and also a royalty on what the ship might earn within a given time. Now who was the most patriotic and loyal, the man who shouldered the gun and helped fight the battles, or the one who skinned the Government in making large profits in selling her ships and embalmed beef? Organized labor proved her loyalty to this country in 1898, and will do it again at any time that it becomes necessary to do so.

The class of people who call themselves anarchists were brought here under contract to work in the mine or factory and have displaced workingmen that have been the bulwark of this Republic. This undesirable element were the most vicious from whence they came, and the labor organizations are not responsible for them coming here. Employers of labor are the ones who are to blame for this undesirable element being in our midst, and they are doing all they can by hook and crook at all times to flood this country with cheap labor. The members of trade unions are doing as much as any other class of citizens to maintain good government.

The Manufacturers' Association in the New Orleans convention "Resoluted, etc." This august body said that they had no objections to labor organizing, but that the union must keep hands off of the wage question, also must not meddle with legislation. I wonder what these people think we organize for if it is not for the purpose of having something to say about the pay we shall receive and the number of hours we will work in any one day. If the man who toils has nothing to say about what he shall receive for his day's labor, or how long he shall work in earning his wages, he is a slave and the employer is a master, and that is all there is to it. Parry says that each individual should get all he can for his work, but that the worker should not be hampered by organization. That would be fine talk if there was one employer for each employe, and it might be well to follow out his advice if such was the case. But instead of one employer to each employe, we have one employer to thousands of employes. These employers are not in touch with their employes, hardly ever see them, and only know their worth through some one else. This talk about a man being held back because of his membership in a labor union is all bosh; and that the man would get more money without his union than with it, is simply the talk of an idiot.

The Manufacturers' Association claims the credit for the defeat of the Eight-Hour Work Day Bill that was introduced in the last Congress. I am sure that it cost considerable money to do this. We know that money is used to procure legislation. Just now the daily press speaks of money having been used in Wisconsin, Kansas and Missouri State Legislatures. That those who have been elected to serve the people faithfully have sold their votes. In Missouri several prominent men of that State are now in a fair way to serve the State behind prison walls; others have taken flight and will give the United States a wide berth for some time to come. Thousand dollar bills were floating about Jefferson City, Mo., quite plentifully at the close of the last Legislature. Thousand dollar bills are not given away without there is something doing. This kind of work is damnable, still we find that some of our law-makers will sell out. Now is it any wonder that we fail to get laws passed when money is so freely used

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to defeat our aims? The time will come when the wealthy man who uses money to influence legislation will be treated to a dose of medicine that will be a warning to all other boodlers to keep hands off the ballot.

While traveling in the West during the month of April, I happened to meet with a member of the Manufacturers' Association from Wisconsin. This man, without doubt, was one of the bitterest foes of organized labor that I ever happened to meet within all of my travels. Not knowing who I was, this party gave me much valuable information that I could not have gotten had he known my business. This party told me that the Manufacturers' Association had a large reserve fund on hand and was adding to it all the time, and that this money was to be used against organized labor. In case of a strike, the association would bear at least half of the expenses, and that the strike would hardly ever last longer than sixty or ninety days, and by that time the strikers would have lost the strike. He went on to say further that they defeated the Eight-Hour Law in Congress last winter, and it was their purpose to defeat in the future all legislation asked for by labor unions. I have not the slightest doubt but what they will make an effort to do as that party said they would, and they will resort to any kind of a method to accomplish that end.

Once upon a time I was traveling in Texas, and in conversation with a prominent railroad official who did not know me at the time he was talking with me, said that he at one time brought into a certain large city in that State several hundred Mexicans and Italians and voted them on election day, and not one of them had a right to vote. He said he could not do that now, as the labor agitators had gotten things worked up to such an extent that it was not safe to do it now. I mention these two cases to show to what extent the man of wealth and influence will resort in order that he may accomplish the desired end. If organized labor should practice such work as this, what would be said about it? Why no one would ever hear the end of it.

If the manufacturers of this country have organized to destroy the labor union, they will find out that the task will not be an easy one. In this day and age of trusts and combines, labor will organize. It has a legal and lawful right to do so. Labor will demand and get a share of this world's goods. Organized labor asks no charity. Organized labor asks an opportunity to make an honest living by work. To give an able-bodied man money that will keep him from work will encourage idleness and shiftlessness. Idleness begets crime. Crime will degrade society if not curbed, and once society becomes degraded all good government ceases to exist, and then anarchy would reign. Organized labor has not come on the scene for the purpose of making war on capital as Parry tries to make believe. Was that its mission it had better never have been brought into existence. If the Manufacturers' Association was founded for the purpose of crushing out organized labor, it had better never have seen the light of day either.

If these two great forces think that they can get along without each other, they are badly mistaken. Should we take a backward step, labor could get along without capital, but at no time could capital get along without labor. It would be far better for D. M. Parry and his outfit if they would try to get along with organized labor. It is not how well capital and labor can get along without each other that men should teach and preach, but how well they can get on together. I do not believe in strikes, only as a last resort. Strikes become necessary once in a while. Every strike that has ever occurred has taught some one a lesson. Take away the possibilities of a strike and working people would be slaves today, as were the children of Israel when Moses asked that tyrannical old king to let his people go into another country as they were dissatisfied in Egypt. That there will be fewer strikes will depend upon the laboring people themselves. In the first place, if laboring men will combine together the chances for a strike will be lessened, and still more so if the organization has a large defense fund on hand for any emergency that might arise.

Were laboring men disposed to pay more attention to legislation, there is a chance that strikes might disappear altogether. The proper place to begin is in the primaries. See that only good men are elected to office. The proper use of the ballot will make such men as Parry and his kind take to cover. Why should I vote for a man for any office who will neglect my interest? Is my vote to be used as my conscience tells me is right, or, at the dictate of some one who cares nothing for me or my interest, only to further his own selfish interest. The ballot is sacred, and should be kept so at all hazards. The ballot should insure us good government. Good government should in-

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sure us happiness and prosperity. The man who is influenced to use his ballot for evil, or will sell it for money or whisky, should be disfranchised along with the one who attempts even to do such a thing. It is a known fact that money and drink is used to influence voters on election day. Such work should not be allowed. Labor organizations have done much to procure a pure ballot. There is still much to be done to entirely free it from evil doers.

I don't care for the threats or intimidations of the Manufacturers' Association, or anyone else as far as that goes, in their opposing organized labor in securing labor legislation. I know they have the money and that they will use it in every way possible trying to defeat the aims and objects of labor organizations. It has been done before and will be done again. They will stoop to do the dirtiest kind of work; that is their record. I can remember when workingmen were voted at the polls like so many slaves. It has not been so very long ago when if you expressed your honest opinion politically, too freely, you were liable to be called up and silenced, and be told if you expected to hold your place you had better keep very quiet. If we are free agents and have a right to choose between parties, why should we be silenced when we express an honest opinion politically?

It seems to me that this matter has gone far enough. Let us stop it, and at once. Let us be free and independent, and vote to our own interest. Let us not be slaves to any party that was ever organized by politicians. He who is against us, is not for us, that is sure. Let us now vote for the man. It is not parties that make labor laws, but men. Now is the right time to make the start. It is now about eighteen months until we again elect law-makers. I will make my declaration of principles. How many will follow, union and non-union men? I will publically announce that I will vote for no man for the State Legislature of my State, or the National House of Representatives, who will not pledge himself to vote and work for such labor laws as shall be demanded by organized labor, and further, that there shall be arrangements made whereby the unions shall be notified as to what was done, so the membership at large may be made cognizant of it.

The threat has been made that in the future labor legislation is to go down in defeat. Let us see if such will be the case. We have the votes and the Parry outfit have the money. If we use good judgment these people will not be able to use any money. Let us get down to business at once. How many will respond to this article? The columns of the magazines are open to all who care to discuss this question.

To vote for the man who will do his duty to both capital and labor, will beat striking at any time. Parry fears voting far more than he does striking on the part of laboring man. When you strike, your wages stop and there is a likelihood of the strike being lost, but when you vote you do that without any fear of loss of position if you belong to organized labor. We have the Australian system of voting in nearly every State now. All you have to do is to watch for reprobates at the polls and see that there is no crooked work done. Warn all that if any one is found tampering with the ballot it will not be well for them. If money or drink is used to influence voters, let the severest penalty be applied to all guilty persons alike. To use questionable means to get votes is just as bad as to break open a ballot box and change the vote on a ballot. All we have to do is to stand together as one man and we will win. If you do not take an active part in this coming campaign and see that good honest men are elected to office (both State and National) don't howl any more about not getting what you claim is coming to you. What will you do? I have made up my mind what I am going to do, and if I am alone in this thing I can say ever afterwards that I did my duty as I thought best in the interest of myself and my fellowman. I have no fight to make against anyone as far as I am concerned. I like to see wealth and see the same placed where it can be reached by those who wish to toil for wages. I want all laborers to get well paid for what they do.

If Mr. Parry and his six-hundred are spoiling for a fight, I am one who is willing that he shall have a run for his money. I believe this man to be a blatant jackass, and that his followers are not legion, as he tries to make believe. Let us take the braggart down a peg or two. I am well acquainted with many wealthy men who treat their employes with fairness and never bother them as to what they may belong. Such men deserve to prosper; they are giants in this world of ours, and the world is much better off by them having lived. Men like Parry and his kind come and go, and the people remember them only for the bad smell they left behind. After years have come and

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gone Parry and his men will be forgotten. Labor and capital will be found working hand in hand; there will be no great chasm between them. Eight hours will be a day's work and wages will be good. Children under fifteen years of age will be in school and will be debarred from the labor field. Their cheeks will glow with the brightness of the sun. Women who toil will get equal pay with men for the same work. The hell-hole saloon will have vanished, and there will be no tempting games of chance to get the hard-earned dollars of men who toil.

The laws of the land will be in the interest of the masses and not the few, and happiness will be supreme in the land.

CHAS. W. MAIER.

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Labor as a Commodity.

The question of whether or not labor is a commodity is often argued pro and con, but on the whole it is safe to class it as a commodity surrounded by peculiar conditions. These peculiar conditions are the brain which directs the energy of the laborer and his physical welfare, and the bodily, mental and moral welfare of his family. With any other commodity there is nothing involved as to the welfare of the commodity itself. With man the entire reverse is true. Many millions of men have naught to sell but their labor, and the price for which they can sell it, and the conditions under which they can labor, means everything to them and theirs. Men who labor early found it to their advantage to band together to increase the price of labor, and in England some of the first steps in unionism were taken. That country had long held the laborer inferior, and for centuries there had been serfdom, with the metal collar about the neck of the serf as a mark of his slavery. Therefore, when men commenced to organize for their mutual benefit the law laid its hand on them heavily, with the approval of the *best citizens*, and for a time the labor movement was stayed in its progress, but only for a short time.

In this country there was much opposition, and business men banded themselves together in different cities to fight the "pernicious labor unions," but the effect of their efforts has long since died and passed into oblivion, just as the efforts of the men who today oppose labor unions will pass and in a short time be unnoticed and forgotten in the great forward advance of the labor movement.

After the Civil War everything was in a more or less chaotic state in labor matters in the United States, and gradually as industry resumed sway and conditions became settled it was evident to thinking workingmen who looked into the future, that they must work for the unity of the working people, and that laboring men must get together if they hoped to hold their own with the steadily increasing demands made on them. The agitation commenced, and while sometimes it may have seemed over radical, or the methods employed not of the best, yet the result has been one of great good in putting into the hands of millions of men better wages and giving them better conditions to labor under, and in starting many others on the same road to success. This has been accomplished despite the open hostility of the employer, often of the law, and often of a portion of labor itself and the apathy of others until the fact is recognized, even by its enemies, that organized labor is here to stay, that it is built upon too firm a foundation to be destroyed, and that the better method is to treat with it somewhere near on the bounds of fairness. This is as it should be. The man who labors *is a man*. He has a man's loves, hopes, aspirations and desires, limited to a certain degree by his circumstances, but they are equally his as they are attributes of the man who is his employer. The employer buys all the other commodities necessary to conduct his business and it still lies idle until he buys the commodity *labor*, and with it obtains the intelligence that directs the employment of his other business commodities so that his business yields a profit.

The intention and effort of organized labor has been to develop the intelligence of its members and make them as a whole more valuable to the employer, and also while developing the mental side to develop the moral side as well. From the adverse conditions under which trades unions have been built up they have been compelled to use every means to show that trades unions were a step in advance in the betterment of men, and better and more moral workmen has been the outcome. Education has been of great benefit to the organization of laboring men. Men studied their conditions, saw wherein they could be bettered, and presented these facts so clearly that many times they gained what they asked for without trouble; but often the strike had to be resorted to to gain a point, and sometimes that, too, failed.

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Where the employer has no organization to contend with, the fact that labor is a commodity is pretty well emphasized. His employes work very cheap. The welfare of the man or his family does not enter into the employer's consideration. "I can get this man for 90 cents or $1 per day; why should I pay him more?" is the self-satisfying thought. "He is worth $5 a day to me; I had ought to pay him $2, but if I can get $4 profit off his labor instead of $3, that is so much the better for me," thinks the employer, and as he reasons he acts, and the non-union man is helpless. What can he do alone?

The aim of trades unions has been to establish a wage for a reasonable day's labor that shall be sufficient to support a man and his family respectably. If a man can not earn enough to do this, and if he has children, the probability is that they will be forced into the struggle for bread before they are well started at school, and they are liable to grow up to manhood and womanhood stunted physically, mentally and morally. Under an equitable adjustment of the earnings of their natural protector with his employer these dwarfed attributes would never have become a part of their personality. Trades unions do not desire a radical overturning of things, nor the annihilation of the employing class. They recognize the fact that the employer has existed and must exist as long as labor. They desire three reasonable things: Hours of labor; rules governing their labor; and wages for their labor. They base their demands for these on justness and fairness, and the employer who meets them on this common ground will have no trouble in effecting a settlement of anything that may arise between him and his employes.

At the present time trades unions and employers are moving along a common line of better understanding. There is a mutual desire to settle difficulties that arise without a strike. Arbitration and conciliation are gaining ground. Arbitration by mutual consent of both parties concerned directly in a labor dispute is growing rapidly in general favor. No one wants the compulsory form of arbitration. One often wonders why, and the conclusion naturally comes that justice so often goes astray that everyone concerned is fearful that if compulsory arbitration became established as a part of our present legal system complaint would become chronic.

W. L. FRENCH.

Class War in California.

For the first time in the history of Southern California, which is filled with union-haters, organized labor will participate in the annual floral parade in Los Angeles, which will be given on May 8th, during the visit of President Roosevelt. H. G. Otis, editor of the notorious scab Los Angeles Times, has resorted to every means at his command to prevent this recognition of the unions, but the citizens in charge of the reception to the President refused to be browbeaten by Otis. He has been turned down completely, and as a last resort he is attempting to discredit the unions by publishing each day outrageous lies about the unions' "intentions" to do this and do that while the President is here. But the more Otis howls the more he calls attention to the fact that he has been ignored.

It is safe to say that there is not another newspaper in the United States that so persistently misrepresents organized labor. Otis is exceedingly underhanded in his opposition, his favorite method being to give prominence in his paper to every labor dispute, and in every instance to claim that the unions are in the wrong. The Times especially commended the recent speech of Parry, and has denounced John Mitchell as an anarchist. In its eyes Baer is a martyr.

If every reader of the Magazine would write letters to the following advertisers in the notorious scab Los Angeles Times, asking that they withdraw, and withhold further patronage until they do so, much good would be accomplished:

"Cuticura"—Potter Drug and Chemical Corporation, Boston, Mass.

"Force"—The Force Food Co., Buffalo, N. Y.

"H. O."—Hornby Oatmeal Co., Buffalo, N. Y.

"Postum"—Postum Cereal Co., Battle Creek, Mich.

"Peruna"—Peruna Medical Co., Columbus, Ohio.

Wilson Whisky—Wilson Distilling Co., 100 Broadway, New York, N. Y.

Lydia E. Pinkham Medicine Co., Lynn, Mass.

"Tutt's Liver Pills"—Tutt's Mfg. Co., New York, N. Y.

"Scott's Emulsion"—Scott & Bowne, 409 Pearl St., New York, N. Y.

Wright's Indian Vegetable Pill Co., New York, N. Y.

—Correspondent.

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Death of Mrs. Hannahan.

On May 9th, after but a short illness, Mrs. Hannahan, wife of Grand Master Hannahan, died in the city of Chicago. For many years Mrs. Hannahan has been known and remembered by delegates and visitors at past conventions as a kind and gentle lady.

But two years ago the lovely daughter of Grand Master and Mrs. Hannahan died, just as she was reaching womanhood. None can know the grief of a loving mother thus left childless. Years ago an only son died at the age of seven. Bro. Hannahan is now alone. In the cemetery of Mount Olivette lie the bodies of all that have made his home dear.

Expressions of sincere sympathy come to him from all parts of the land; from the men in the cab and from the President of the Nation. Where'er the headlight gleams there friends have sympathy for Bro. Hannahan.



Official Circular No. 10.

The following matters are referred to in Official Circular No. 10, issued by Grand Master Hannahan on May 1, 1903:

End of the Fiscal Year.—The quarter ending June 30, 1903, closes the present fiscal year, and the officers and members should realize the important duties devolving upon them at this time, especially during the months of May and June.

Nomination of Officers.—Nominations for all elective offices must be made at the last regular meeting in May. The members should give considerable thought to this very important meeting and be present to see that the best possible candidates will be named for the several important offices in the lodge.

Under the present system of electing officers it is of the utmost concern to all brothers that they be present on the day when the nominations are made. We urge upon you to keep in mind the date and be present, as the success of your lodge depends, to a great degree, upon the character and efficiency of the officers. You want members in office who will do their duty and at all times look after the interest of the membership. Be on hand to nominate good men, and we are sure they will be elected. If you stay away and fail to do your duty do not complain if things do not go well at election. Your place, my brothers, is at the meeting when nominations are made to create the official staff for the next ensuing year.

At the meeting when nominations are made, Secretaries must be sure that all nominations are recorded upon the minutes. *Do not fail in this.*

Board of Trustees.—Pay particular attention to the provisions of Section 138 of the Constitution, relating to the Board of Trustees. But one member of this Board is to be nominated this year for a term of three years. That is to say, there will be but one vacancy to be filled in the Board of Trustees, and which will be to succeed the brother who two years ago was elected for the two-year term. Of course there will be no limit to the number of members who can be placed in nomination for the three-year term, but in electing it will be understood that there is but one vacancy on the Board to be filled this year.

Local Protective Boards.—Where a lodge has more than one Local Protective Board it should be plainly indicated for what *road or division candidates are named;* and the Secretary should see to it that the candidates' names are placed where they properly belong on the ballot. Members will vote but for *one* Local

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Board and Chairman of same, which will represent the system or division upon which they are employed. See Section 222 of the Constitution.

One Candidate.—Where but one candidate has been nominated for a particular office, the provisions of Section 149 shall govern, and which are as follows:

"Section 149. *One Candidate.* If there be but one candidate for an office, the Master shall declare him elected."

Annual Reports.—Do not forget the importance of Section 135 and see to it that your lodge will not be delinquent on July 20th for annual reports. On June 1, 1903, the blanks will be forwarded by the Grand Secretary and Treasurer and we urge the officers whose duties require them to give attention to these blanks to be prompt in filling out that part which relates to their office. A penalty is provided for all those who fail to comply with the law. See Section 136. We do not wish to enforce this penalty on any lodge, but if these reports are not in on July 20th we shall be required to do so. Quite a number of lodges have failed to attend to this duty heretofore. Let there be a change and every lodge send in its report promptly.

Official Ballot.—Accompanying this circular is a sample of the official ballot, a similar one to be used in all lodges. Please see that each member receives a ballot, as *no vote is legal except it is received upon the official ballot, signed by the member casting said ballot, and bearing the official signature of the Secretary of the lodge, with the seal of the lodge attached.*

We would recommend that the Masters of all lodges instruct their Secretaries to read at all meetings of the lodge, prior to the election of officers, Section 144 of the constitution, so that the members will become thoroughly familiar with the requirements of the law.

Secretaries will affix their official signature and the seal of the lodge to all ballots before they are delivered to the members.

Lodges will understand that the enclosed sample ballot is merely sent as a guide in preparing the election ballots for distribution among the members, and that the Grand Lodge can not send more than one to each lodge. The ballots can be printed, typewritten or pen-written, as the lodge may decide. Do not send to the Grand Lodge for ballots for your members. We can not furnish them.

Delegate.—At the last annual meeting it was required that a Delegate and an Alternate Delegate to the Grand Lodge be elected. Remember that this year it is not required. Section 146 provides that the candidates for Delegate and Alternate Delegate to the Grand Lodge shall be nominated at the meeting held in the same year that the Biennial Convention meets. There being no convention in 1903, no candidates for this office shall be nominated this year.

Unpaid Bills.—Let every lodge be square with the Grand Lodge on June 30, 1903. If you receive a bill for supplies due before June 30, do not fail to have an order drawn upon the Treasurer and the amount remitted with the last returns for the quarter, so as to be credited before the close of the fiscal year. We wish to begin the new year with all lodges in good standing with the Grand Lodge and no outstanding bills. A statement was sent to all lodges on April 1st of their indebtedness.

Filing Applications for Beneficiary Certificates.—In quite a number of cases applications for beneficiary certificates have been received by the Grand Secretary and Treasurer which do not indicate from whom they came or the amount of certificate desired. In filing applications the Secretaries will kindly see that the form on the inside and on the back of the application is properly filled out in all blank spaces, including date of initiation, so that when the application is received there will be no trouble in ascertaining from whom the application came and to whom the beneficiary certificate, after the application has been duly approved, shall be forwarded. If a dispensation is requested under the provision of Section 204, then let the request and medical certificate be mailed direct to the Grand Master. Applications for new members will be sent to the Grand Secretary and Treasurer.

Irregular Remittances.—Quite a number of lodges do not yet seem to understand the law governing remittances to the Grand Lodge, to which we called attention in our Official Circular No. 8. Section 155 of the Constitution requires that all moneys due the Grand Lodge must be remitted by the Treasurer. Almost daily we are in receipt of small remittances from Secretaries and other officers for supplies, grand dues, and for other purposes, which can not be receipted for, and which must either be returned, or held until we receive the regular monthly returns from the Treasurer. This

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FEDERATED BOARD OF ADJUSTMENT, BANGOR AND AROOSTOOK RAILWAY

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causes unnecessary expense and confusion that can be avoided by each lodge strictly complying with the law, and seeing to it that no money is sent to the Grand Lodge for any purpose whatever, by any one except the Treasurer, and by him only when he makes his regular returns for an assessment, except in cases where he is called upon by the Grand Lodge to send money to make up shortages in his returns.

The Wabash Railroad Injunction Case.—It is with feelings of pride and satisfaction that we call attention to the settlement of the controversy between the Wabash Railroad Company and the members of our Brotherhood employed on that system. A full and complete history of the case from the beginning of the negotiations with the company for a new schedule of wages, rules, etc., to the final settlement, including the full record of the court proceedings which dissolved the injunction, has been prepared and printed in book form, and a copy of same has been sent by express to the Secretaries of all subordinate lodges. If you have not received your copy please advise at once and we will have the express company send out a tracer for it. The book should be kept in the lodge room and should be thoroughly read, as it contains information of great value to the membership, and especially for members of Protective Boards.

The dissolving of the court injunction in the Wabash case, and the final settlement between the Brotherhood and the company is universally conceded to be the greatest victory ever gained by organized railroad employes. It was a struggle long drawn out, but was fought in a manly manner, and an unlimited amount of credit is due to our members directly interested in the Wabash System for their loyalty and calmness during the trying hours, as well as to the General Counsel of the Brotherhood and the other able attorneys who succeeded in fighting in the courts the case to a successful issue.

The victory was complete, and full recognition obtained for the Brotherhood on a system that has for years bitterly opposed labor organizations, and refused to recognize or treat with the officials of the same. Bro. Carter has ably written up the entire controversy in the Magazine, and we heartily recommend that every member thoroughly peruse the same.

Office of Grand Medical Examiner.—I now desire to call attention to the medical department of our organization. Our Grand Medical Examiner, Bro. Dr. W. B. Watts, has called my attention to the fact that applications for beneficiary certificates reach his office sixty days after the applicant has been admitted to membership, and, of course, the applications are rejected and Dr. Watts is maligned and fault is found with him for the performance of his duty in strict accordance with the law. Let it be understood that henceforth unless all applications are properly endorsed by your Local Medical Examiner and received at the Grand Lodge office within the prescribed time, no beneficiary certificates will be issued, and the applicant will be required to undergo another medical examination before he is permitted to participate in the beneficiary department.

My attention has also been called to the fact that a great many of our lodges have a number of Medical Examiners, some as many as seven or eight, which is not alone in violation of our laws, but necessitates a great deal of extra work in looking up their records to see that they are qualified physicians, and I desire to impress upon the minds of our officers the necessity of at all times complying strictly with the law in the transaction of your business, which will facilitate and expedite the work of the Grand Lodge office to a great extent, as well as insuring the proper discharge of the same. For illustration, we have one application on file in this office for the payment of a disability claim that can not be paid until thoroughly investigated by a Vice Grand Master. In this instance the difficulty is that the claim is irregular and can not be paid for the reason that the law requiring applications for beneficiary certificates to be immediately forwarded to the Grand Lodge office when examination is made was not complied with, and in the meantime the disability occurred, the applicant already having been initiated. This is but one instance of the many irregularities that occur. You make laws for us to conform to which you should abide by, and if there is a strict conformity to our laws on the part of all, no injustice can possibly be practiced.

Special Notice.—A great many letters are being received at the Grand Lodge office asking for information regarding the concern known as the "Locomotive Firemen's Brotherhood Health and Accident Association," of Schenectady, N. Y., of which Bro. Norman N. Hicks is President and General Manager, and for the benefit of our membership we desire

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to say that this association is in no manner connected with the Brotherhood of Locomotive Firemen and we know nothing about the liabilities of the concern and, therefore, can say nothing for or against it. If any of our members desire to interest themselves in it, they will, of course, do so on their own judgment. The matter was brought before the Eighth Biennial Convention at Chattanooga, last September, and that body refused to consider it in any manner whatever, and the Grand Lodge officers must, therefore, positively refuse to indorse said Health and Accident Association.

The Magazine.—We desire to call the attention of all members of the Order to the interests of the Magazine, and do not hesitate to ask the entire membership to give it thoughtful consideration. We ask you, brothers, to compare the official organ of your Brotherhood with any other similar publication in the land; let the comparison be critical, and you will not be made to blush. The more thorough your investigation the better it will be for the Magazine. Bro. Carter, the Editor and Manager, is giving his readers a wide range of reading matter relating to the welfare of the Order. Its departments are interesting and instructive. Editorially, it is his purpose to defend and maintain the dignity of labor and the power of the Brotherhood. The mechanical department grows steadily in interest. The woman's department is adapted to the home and fireside. The departments devoted to correspondence and miscellaneous matter are attracting merited attention. In making these statements we only recite what every brother knows who reads the Magazine, and they are made in the hope of inspiring fresh zeal on the part of our membership to increase the subscription list. We appeal to you, one and all, to take the subscription question in hand, and if each member will secure but one subscription there will be a large surplus to the credit of the Organization that will more than pay the expenses incurred on account of the office force in the Magazine and Grand Lodge offices.

Bro. Carter has his heart and soul in his work. He should receive the encouragement of the members in the publishing of his book, which he is not receiving as loyally as he should. It can not be denied that the Brotherhood of Locomotive Firemen's Magazine is today considered the most reliable periodical of the kind published in the civilized world. Will you help him or will you permit this plea to go unnoticed? I do not believe that you will.

Conclusion.—In conclusion, we also wish to call attention to the fact that there has not been a letter of complaint received, either by the Grand Secretary and Treasurer or myself, since the first day of July last.

During the last five months the Joint Protective Boards have been in session in every section of the country. It was impossible for the Grand Master to meet with all of them, and the Vice Grand Masters were constantly engaged in this line of work, and for the first time in the history of the Organization the Grand Secretary and Treasurer was taken out of his office to assist in the work of adjusting grievances. It affords us pleasure now to say that on the horizon we see sunshine and success. During the entire period through which we have passed, when the labor world was disturbed and there was a feeling of unrest on the part of the employers, we can happily say to you that we have been successful in the adjustment of every matter in which our Grand Officers and Boards participated. Now then, we have two months in which to show our appreciation of the splendid work accomplished in the interest of the Organization. During the period mentioned, those who are not members have an opportunity of gaining membership in the Brotherhood of Locomotive Firemen at a very small expense. Will you put your shoulders to the wheel as your Grand Officers have done, and assist them in the work of building up the institution by adding to the list of membership those who are not now enrolled on our records? I ask you as your Grand Master to do everything in your power to make every man on your road a member of our Organization.

Our clerks are today in this office working until midnight in order keep up with the rush of business that we are now experiencing, and they are willing and ready to work until broad daylight if you will send them the names to enroll as you are requested to do. Make the months of May and June the banner months of the Organization. The opportunity is open to you because those two months exempt them from the payments that are necessary during any other season of the year, which you fully understand. Go out from your lodge rooms, do missionary work, and do it like men, and make the

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Brotherhood of Locomotive Firemen the banner and greatest organization of any labor institution that has ever been established in any class of labor. Appreciate the fact that the President of the United States is a loyal member of our Brotherhood, and takes as much interest in the advancement and progress of the Organization as we do who are active members. Make him feel proud, as well as your Grand Officers, when the records close on the last day of June, that we have made the greatest record pertaining to membership that has ever been established in the history of any labor organization on the face of God's green earth.

* * *

Sparks.

A member of Lodge 113 writes the Magazine that Bro. T. P. Scholtz, of that lodge, and Miss Leona Canfield, of Glenns Ferry, were recently united in marriage. Bro. Scholtz and bride have the best wishes of the members, who wish them a happy and pleasant journey through life.

A courteous invitation has been received to attend the union meeting of railroad organizations to be held in Montgomery, Ala., and Pensacola, Fla., beginning June 2, 1903. It is hoped that much good may result from this meeting.

Black Hills Lodge 86, Laramie, Wyo., recently gave its twenty-fifth anniversary ball, which was largely attended, and a most enjoyable time is reported.

Bro. Chas. N. Snyder, of Lodge 218, Colorado City, Col., who has been Secretary and Treasurer of that lodge for over ten years, and who has also been solicitor for the Continental Casualty Company on the Colorado Midland and the Midland Terminal Railways for the past four years, has had his territory extended to include the Rio Grande Western Railway.

Commemorative of the death of Bro. Albert Neumann, of Elm City Lodge 284, New Haven, Conn., who was also a veteran of the Spanish-American War, he was accorded a military funeral.

Bro. J. L. Felix, Secretary of Lodge 174, requests that all members of that lodge send their present address to him on a postal card, addressed to J. L. Felix, 2031 Logan avenue, Harrisburg, Pa., so that he may have their correct addresses and send them ballots for the coming election. It is very important that he have the correct addresses of the members before sending out the ballots, and it should be attended to at once in order that there may be no complaint at not receiving a ballot.

Bro. H. T. Davidson, of Lodge 332, Augusta, Ga., advises the Magazine that Bro. Thomas C. Culpepper, of that lodge, died April 1, 1903, from injuries received in a wreck caused by a negro flagman who went to sleep at a switch. Bro. Culpepper was a valued and honored member, and a good man morally. To the wife, babies and relatives the brothers extend their sincere sympathy.

For the information of the members, the names and addresses of the officers of the General Chairmen's Association are herewith published, and are as follows: Chairman, Thos. Burke, 2106 South 5th Street, St. Joseph, Mo.; Vice-Chairman, Jos. P. Walrod, 32 West 9th Street, Oswego, N. Y.; Secretary and Treasurer, E. A. Meyers, 1403 McCormick Avenue, Washington, Ind.; Alternate Secretary and Treasurer, J. I. Parel, Box 203, Ft. Dodge, Iowa; Board of Trustees, A. Phillips, Rocklin, Cal.; Thos. Albright, 1309 Elm Street, Fort Wayne, Ind.; C. M. Rodgers, 606 South Main Street, Cleburne, Texas.

Bro. J. E. Culey, of Lodge 314, San Bernardino, Cal., sent to the Magazine on May 1st an order for forty subscriptions for the Locomotive Firemen's Magazine. This order netted him $10.00 in cash as his commission. San Bernardino is comparatively a small town. Bro. Culey had his outfit but a few days when he sent in this splendid order. He has in the past sent in more than a hundred subscriptions in a year when there was but little recompense offered to him to work for the Magazine. There is no doubt he will do as well or better this year than ever before, and if he succeeds in sending in one hundred subscriptions this year, as he has done in the past, he will receive $25.00 in cash commissions, and a cash prize of $25.00, making a total remuneration of $50.00 for his work. This instance is cited to show what can be done for the Magazine with the proper determination and effort. Other brothers are sending in fairly large lists, and there is no reason why some member in every

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lodge in the country should not make at least $50.00 in cash soliciting subscriptions for the Magazine, without any interference with his regular work. There are thousands of railroad men in other branches of train service, throughout the country, who would be glad to subscribe for our Magazine if they were given an opportunity. Will you not take hold of this work, and while helping *your* Magazine to a greater circulation, line your own pockets with a liberal share of spending money? Write to the Magazine office and find out all about it.

Bro. Chas. Bennet, of Lodge 188, who has recently been in the Southwest seeking to recuperate his health, says the Brotherhood men in that part of the country are kind and hospitable.

A small volume of poems has been received from the Truth Publishing House, of Elkhart, Ind. The author is Harry S. Chester, and the verses are of more than usual merit. There is something of the style of Will Carleton or James Whitcomb Riley, both in dialect and pathos.

Attention of the reader is called to the first article in this number of the Magazine, entitled "Progress of American Railways." While statistical matter is always "dry," much information will be found in the article that will be of value to those interested in the prosperity of their employers and the prosperity of themselves. Especially will employes of the Wabash take pride in the phenomenal prosperity of that system, as set forth by the quotations from past official reports and statistics compiled from standard authorities. One of the interesting features of the article is the fact brought out that railway employes received, as an average, $2.63 more in 1901 than in 1895.

Forum

Protection.

The first symbol of the motto of the Brotherhood of Locomotive Firemen is "Protection," and of it I am going to write for the June issue of our Magazine, and lay before our readers the aims and objects of the Order as we teach it to the members of our Brotherhood, and should any one entertain different opinions of us I hope that I will by this article set them right with us. The fact that we use the word "Protection" in our motto does not mean that we are looking for trouble, by any means, or that we are going to make life miserable for those whom we are working for. The prevailing opinion, to a certain extent, has been and is now that organized labor is looking for a flimsy excuse to quit work whenever it feels aggrieved. This is not the case with the members of our Brotherhood, as some seem to think, but quite the reverse. While we mean to give the members every protection possible, and use every effort to settle all questions that come up peaceably, we only use the strike as a last resort, when everything else fails, and we use this weapon to enforce a just demand. Where the employer of labor shows a disposition to treat fairly with our committees there is no trouble of any kind with those whom we represent, as we are always ready to make concessions in the interest of peace and harmony.

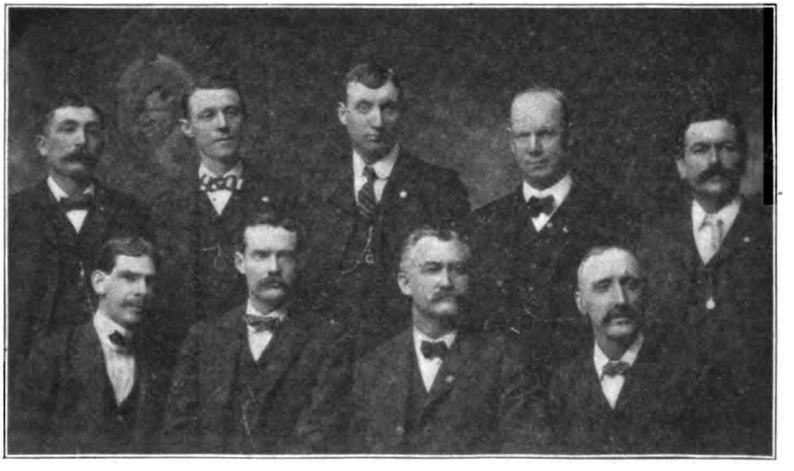
The strike should be used only as a last resort, and those who engage in one should be certain that they are not making too great a sacrifice, when they withdraw from the service of their employer. There are times when it pays to wait until conditions are more favorable, even though the hardship has to be endured for a while longer. It is better to put up with a hardship for a definite period than an indefinite one, because wrongs right themselves oftentimes, without much effort on the part of anyone. I don't mean by this that no effort should be made to better conditions, but wait for all wrongs to right themselves. No, not by any means do I mean that, but I mean that it is better to wait for a while, than it is to force an issue and lose in a short space of time the good work of those who have so faithfully built up the Order, and made it what it is today. I can not recall an instance where the Brotherhood made such a mistake, and I believe we can say, without fear of contradiction, that we can lay claim to the success of the Order through the conservative policy it has pursued all these years.

We appreciate the fact that the wage

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question can not be settled once and for all at any one time, for hundreds of years has this question claimed the attention of the greatest of thinkers and statesmen and it is as far from settlement now as it has ever been, and it can not be well otherwise, because of the everlasting change of conditions that constantly take place daily in our industrial world. What might have been considered a fair day's pay for certain work this time last year would be far below what would be considered a living wage now. Everything changes in this world of ours, and there seems to be nothing that changes so rapidly as the wage scale. While the wages might for a long time be the same, of his family with, and have a little left for a rainy day. And the rainy day should be looked after as closely as the present time. I mean by the rainy day, "old age," that will come to us all sooner or later, as the case may be, and in that event we should be prepared to meet it.

There is little if any protection for the wage earner outside of his union, and to that he must look for the securing to him of a good day's pay for an honest day's work. You will hear it said every day by some opponent of organized labor that the man who belongs to a union is held back by some other one who is not as good a workman as himself, and, by so doing, the chances of the superior work-



THE B. R. T. WABASH COMMITTEE

the price of living can so change that the effect upon the laborer's pocketbook will be the same. There may come a time when the present system that men work under may change, so that it will make no difference in the fluctuations of the cost of living, as the wage question will be so arranged that the one who toils will get what is his without effort, but that method is only in the mind of the dreamer at this time, as we hear him say, "There is a good time coming, boys, there is a good time coming; wait a little, a little longer." While all workingmen will gladly accept better conditions from whatever method that will bring them about, the fact remains that in this day of easy "injunction getting" the laborer will have to look to his union for the "protection" that he will get if he expects to get a wage large enough to take care man are blighted. This is not true; there is no forcing of the keeping of a poor workman in the employ of anyone. Each workman must get to the front by his own efforts and, should he fail to give satisfaction after a fair trial, there is nothing said when he is discharged. The only thing that organized labor does is to see that each workman is dealt with fairly, and that his active work in his union is not charged up to poor services as an employe, which to my own knowledge has been the case more times than one. I might mention one case in particular, in which I organized a lodge once upon a time, a thing that did not meet with the wishes of the master mechanic, and all at once his firemen were "in his mind" not giving satisfaction, and he discharged all that belonged to the Brotherhood, as far as he knew. It

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is not always that a workman is let go because his work is not satisfactory, by any means; it is easier to say that the workman is not giving satisfaction with his work than to say that his activity in his union was distasteful to his employer. It is here that "Protection" comes in good play to see that every one gets justice. That employers of labor are trying to get their work done as cheap as they can is known to all, and to them it is a business proposition, and they will only pay such wages as they are compelled to. That some employers are more liberal than others is true, but few instances are on record where the employer of labor—of his own free will—advanced the wages without first getting some hint that an advance was going to be asked for by his employes.

Without the word "Protection" in our motto, our Order would fail to mean anything, for we not only give our members protection to their wages and see that they get fair treatment, but we throw a safeguard around the home with the best insurance that was ever written for an engineman, and by this kind of security our members know that immediate assistance is at hand in case of misfortune to them and their families.

I believe that the two features of our Order, the taking care of those who are injured and giving the full amount of the policy to the policy holder in case of a member's death, and the taking care of the wage matter, are two things that can not be very well separated, therefore, we hold to both features with equal "Protection" and will not dispense with either without first making the effort of our life to maintain them.

Probably in the beginning of the Order the thought was to only give the engineman insurance "protection," but, as time went by, the necessity of protecting wages was apparent to all, hence we have been doing so.

I am reliably informed that one of the reasons of the Brotherhood being organized was to see that in case of death the member's family would have something left to take care of them with after he was gone, and that the loss of Albert Poole to his mother by the explosion of his engine in the yards in Port Jervis, N. Y., and leaving her without any support, was what prompted the eleven tried and true firemen to meet on December 1, 1873, and institute this Brotherhood. The sight was sad to behold in the taking away of this young man and the leaving of his aged mother without any support. It was no fault of Albert Poole that he was a poor boy, neither was it any disgrace to be poor; those were conditions he had no control over, and had he lived and prospered, no doubt but what he would have had his share of this world's goods. In any event, he would have seen that his mother was cared for, but it seems that something of this kind had to take place in order that such a movement as ours should be brought into existence, and that it has been a blessing to the firemen can be attested to by thousands that have been left behind, after the loss of the one who was the bread winner in the home. Yes, and I can go a step further and say that there are hundreds of our members who are alive and unable to earn a livelihood, that can sing the praises of this Order, as they have received the full benefit of their insurance while they are still alive. This, in itself, ought to recommend it to any nonmember of the Brotherhood, and I can not see any good reason why a nonunion man should hold aloof from us. In our Order we have the best firemen that are in the service of railroad companies, and they are a credit to the community in which they reside. No one need feel ashamed of them when they meet them. They are sober, reliable and industrious, and worthy of the esteem and confidence of all who come in contact with them, and no one knows this better than railroad officials themselves.

We are not organized to encourage strikes and lockouts as a means to enforce an unjust demand. No! not by any means; but, as I have said before, we are banded together to assist each other in times of need, such as sickness, death or accident, or the unjust treatment of our members by those who can and sometimes do attempt to mistreat them. We can go a step farther than we have ever gone if we so see fit to do, and that is, pledge ourselves that we will not support any man for a public office who is not in favor of seeing that labor has its rights protected by legislation. We do not need to go into politics as an organization to do this; all we need to do is to resolve to vote only for the man that we know will pledge himself to us and carry out those pledges by giving labor its share of laws that will give it an equal show with the one who controls capital. There will be no progress in the industrial world without labor any more than without capital. One is just as necessary as the other. One can not get along without the other and make much progress in this day and age. I

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will admit that we have plenty of laws on our statute books that are supposed to be in the interest of labor, but that is the trouble, we have too many laws that don't amount to anything. If we had fewer laws, and better ones, I am sure that the laboring man would be far better off than he is at this time. I never heard an office-seeker in my life say that he was not going to do for labor everything that he could when he was soliciting votes, and from the way he would talk you would believe that the laboring man was the only one who was going to get anything done for him. But what a difference after election time is over. The dear toiler is forgotten in the mad rush to pass laws, and if you get any legislation you have to have a committee on hand and threaten with all kinds of vengeance to get a law passed, and that will more than likely be set aside as "unconstitutional" by some corporation judge that the laboring men are responsible, either directly or indirectly, for his being placed in the position that he holds. What the judge sometimes can't set aside he will see that the "injunction" takes care of when the proper time comes.

In conclusion, let me say for the benefit of all, let one and all voters make a resolution, and keep it, that they will vote for no man for any office who will not pledge himself to see that labor is protected. We need not care what party he represents, or what office he may be out for that is within the gift of the people to give him. If we do this as I have suggested there will be better times for the toiler, and better times always bring happiness and contentment to the one who toils. He is then able to do what society requires of him, in the way of taking care of his family, and doing the will of his God as well, which in the end will make any nation great, where the masses are contented, happy and prosperous.

CHAS. W. MAIER.



Physical and Mental Strength.

"The glory of a young man is in his strength." Whenever we see a number of young men together we generally begin to think of their physical make-up and ability. I have frequently thought of the number of young men who are in our organization, and that a more charitable and honorable set of men is hard to find.

While organization seems to be the order of the day, the public generally is beginning to understand the labor situation more thoroughly, and the benefit to be derived from it is obvious, and yet while the glory of one young man lies in his strength, how much more formidable should the strength of many young men be.

As laboring men we are bound together by the bonds of brotherly love, and on account of the kind of labor we are performing have many exhilarating experiences to relate, and hence to be organized into one large body under the banner of the Order is no more than natural. But the strength of the Order depends largely upon the young men physically but old in experience, and of the propensities that constitute youthful, vigorative minds, quick but sure decisions, and businesslike methods.

Capital set the example and takes it to a successful goal, and it is but natural that labor jumps into its tracks and organizes itself for protection, because every one is aware of the validity of the old adage that "In union there is strength." I am of the opinion that with all the talent exhibited in the average railroad man who has his eyes open to the company's way of doing business, and the important position he holds in regard to it, could so influence the company's business that a railroad without Brotherhood men on it would not be a success. We are a part of the body representing this organization, and in each individual a perfect organization ought to exist, because in us as individuals the strength of the Order lies, and how important it is that each one bring himself to the highest possible standard of perfection. The strength of this Order and the influence it can exert, I think, is not comprehended by the membership in general. If it was, and was understood as it should be, B. of L. F. men would attend lodge meetings and give their attention to the business in a businesslike manner.

I think much is to be learned from the great business men of today who keep after their interests in a manner that is surprising to most common people, and the secret of their success lies in their eternal vigilance, both as to what bills are going through the State legislatures and the National House of Representatives. They are sure to throw their influence toward a man favorable to themselves when a judicial position is to be filled. Active young men are generally employed to do this watching, men who are alive to their opportunity, and who desire to make a record for themselves and build up a reputation. This, perhaps, is why in some instances capital, especially the "divine right" kind, declares that

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organized labor is against individual advancement. Another reason why organized labor has not the same number of eminent personages in its ranks is because there are certain elements in a labor organization which constitute a "square" man, while in the individual whose ambition in life is to make money —and doesn't care how he gets it, just so it comes easy—has no ideal perhaps other than to amass a fortune large enough to enable him to live in luxury. He may be a young man full of energy, and as his fortune grows he sets a goal which he'd like to reach in the financial world and strives for it, regardless of the pain it takes to secure it, and after the shady side of life is reached dispenses it to the people who, in many instances, dub him as a great philanthropist. There are many men in the ranks of labor who are guilty of accepting such acts as this with gratitude.

Frequently we see instances where, on account of some fellow-servant's negligence, our labor is increased so as to make it arduous for us, and should it be the cause of him being reprimanded an unkind feeling may arise between the parties concerned. This method of doing business is a bad one, because if everyone did his duty nothing odious would arise. But when one man thinks that another must do his work in order to keep his friendship things take on a different color, and to expect a man's friendship by neglecting to do your duty is something which frequently causes the system of brotherly love, under which we are to labor, to receive some very hard raps.

Therefore, while the General Chairmen's Association is still in existence, the benefit to be derived from it can be clearly seen, if carried out carefully and the same reported to the membership in a careful, concise manner capable of being understood by all men, both in regard to the kind of engines in use and the kind of trains and the circumstances under which men must labor and, if possible, the kind of freight handled so that a uniform scale of wages may be adopted by the transcontinental lines running almost parallel and handling about the same kind of freight, and come to an understanding in regard to details in schedules so that a quietus may be put upon some men who willingly exclaim that they will give you any schedule any other road has if you will adopt it under their conditions. This association, if properly managed, would be of the same benefit to the B. of L. F. that the General Manager's Association is to the railroads. Besides, railroad men would not have to depend so much upon hearsay and newspapers for their information regarding these things, and be "downed" simply because they haven't ample proof at hand. In fact, let the talent exhibited in this or any other order be brought to its highest point of perfection so that the glory of the young man physically and mentally, which is his strength, will be placed on a par with that of the old man with his gray head.

GEO. A. WEIL.

The General Chairmen's Association.

The General Chairmen's Association met in Chicago, Ill., May 4, 1903. The meeting was well attended from all parts of the United States and much good was accomplished. There will be another meeting of the association, to be held in Chicago at the Briggs House, October 1, 1903, and we hope to have a representative from every system of railway in the United States, Canada and Mexico attend this meeting. There can be much accomplished by attending this meeting and giving us your hearty support.

A MEMBER OF THE G. C. A.

Union Meeting.

A grand union meeting will be held in Erie, Pa., on June 17, 1903, under the auspices of the B. of L. F., O. R. C., B. of L. E., and the B. of R. T., in Maennerchor Hall, corner 16th and State streets, with secret sessions in the afternoon, commencing at 2 o'clock. The public session will commence at 8 o'clock p. m.

All Brotherhood men are cordially invited to attend. Grand Lodge officers of all the above Orders will be in attendance.

W. H. SWAINSBURY, *Secretary*,
General Committee of Arrangements.

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In the Field

First Vice Grand Master.

Since my last letter, I have had the pleasure of visiting and meeting with the lodges in the Virginias.

April 5th found me at Bristol, where an open meeting was held in the interest of the Virginia Southwestern Railroad firemen, and the way the firemen turned out showed that they were progressive; when they organize they intend, by hard work and perseverance, to make their lodge the banner lodge of Virginia.

April 6th found me at Clifton Forge, Va., a city between the mountains, and the home of Lodge 274. Here I met Bro. A. D. Watts, of B. R. T. Lodge 483. I found him an up-to-date Brotherhood man, and one who has a warm heart for the fire boy. Bro. N. W. Wright, of Lodge 274, is the champion coal shoveler of the C. O. R. R.; he says that he can beat the "Kincaid" stoker.

I held a very interesting meeting with Lodge 274. Great credit is due Bro. S. D. McGehee, the popular Master, who is not engaged in railway service; yet he is doing all he can to advance the interest of the members of his lodge. Bro. W. H. Eakin, the Collector, has the best and neatest set of Collector's books that it has been my privilege to see for some time. I am sorry that I did not have the pleasure of meeting W. B. Carper, the Treasurer. I was informed that he was detained at his home on account of a very sick child. I sincerely hope and pray that the Giver of all good gifts has spared the little one to Bro. Carper and his estimable wife.

While at Clifton Forge, I had the pleasure of meeting and conversing with the following members, and I found them all earnestly working for the advancement of the organization: C. P. Stone, J. W. Stone, W. A. Clark, A. B. Campbell, C. F. Vanlar, P. L. Fleming, W. C. Murray and Bro. G. I. Grasty, better known as the "jumper" of 247. J. W. Carter, Vice Master, and Bro. C. R. Dudley, Secretary of 247, are members that can be depended upon. Bro. W. C. Turner looks after the grievances of the members of 274 with accuracy and dignity, which reflects credit on the lodge he represents, as well as himself. I am gratefully indebted to Bro. W. N. Mitchell, of 274, who secured transportation for me over the C. O. R. R., and if at any time I have an opportunity to reciprocate, I will do so with pleasure.

April 8th found me at the beautiful city of Charlotteville, Va., the home of Lodge 588. I was met by Brothers Turner, of 274, and I. K. Harlan, of 588, and escorted to the hall, where I found the members waiting. We had a nice chat, and I am pleased to say that I found the condition of the lodge good, considering the circumstances that surround it.

April 9th we held another meeting and met with the brothers who were unable to attend the one held the day previous. On the evening of April 9th, there was a banquet held at the Hotel Gleason, the following members being present: I. K. Harlan, W. L. Young, C. C. Carter, T. W. Mallary, C. B. McKennie and G. P. Burke. Among the invited guests were Ex-Roundhouse Foreman Mr. A. Winfield, of the C. O. R. R., better known among the engineers and firemen as "Father" Winfield. Mr. W. P. Huntley is the present foreman. A very pleasant, as well as profitable, evening well spent was the verdict of all present, and when the hour for parting came tears filled the eyes of the members when they said "Good-bye" to their venerable friend and father, Mr. Winfield, and the unanimous expression was, "May we meet again and again around the banquet table of Lodge 588, and have our officials as our guests." The friendship and cordiality made us feel like saying, "Let the doors be thrust open and give the public an opportunity to see capital and labor, employer and employe, sitting together around the banquet table." Such acts of good will and friendship as were shown by the officials of the C. O. R. R. at Charlotteville will do more to cement that friendship which is so necessary between employer and employe, and will, more than anything else, lead men to "do unto others as they would like to be done by." We wish Mr. Huntley success in his new position, and may he, as well as the men in his employ, all work together so that they will be a credit to the company they represent.

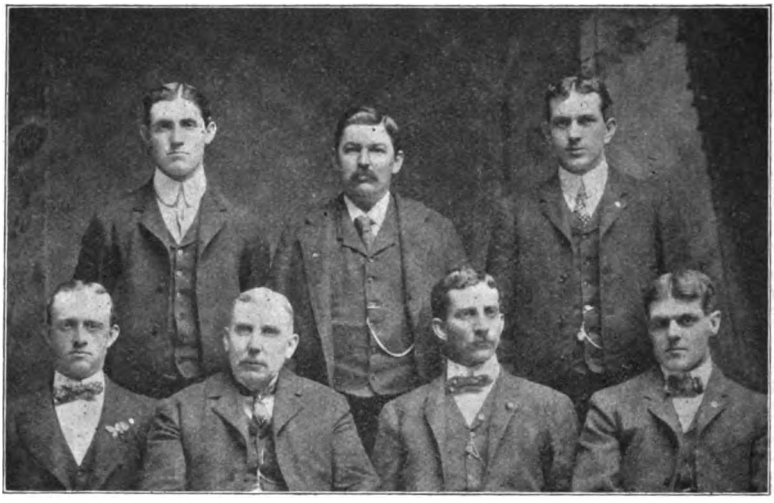
April 10th found me at Crewe, Va. Here I found Bro. R. N. Kelley, Master of Lodge 435, who informed me that it would be impossible to call a meeting, on account of all the members being out on the road. I had quite a pleasant visit with Bro. Kelley and found him to be a

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staunch, up-to-date Brotherhood man, and a credit to the organization. I trust to have the pleasure of visiting 435 and meeting with the brothers in the near future.

My next stop was Richmond, Va., the home of Lodges 497 and 615. I had the pleasure of making the acquaintance of Bro. W. R. Jobe, the popular Master, and B. W. Daugherty, R. E. Bailey and G. P. Ferrin. The officers comply strictly with the laws in the performance of their duties, and 497 is fast becoming one of the foremost lodges of the South. Lodge 615 Brotherhood man could have heard this man praise the organization and the members of his lodge for the many acts of kindness, and the Grand Lodge, which sent an officer to look after his interest, I think there would be no white fireman in the South who would not hold membership in the Brotherhood.

My next stop was Philadelphia, Pa. Here I worked in the interest of Lodge 60. I found the lodge in good condition, and to say that they are "united" in everything that the word implies, is putting it very mildly. We held a very interesting



C. D. Roberts, 236 J. C. Redd, 588 W. C. Turner, 274
W. R. Jobe, 497 C. A. Wilson, 1st V. G. M. A. G. Watkins, 294 Chairman H. W. Fisher, 393 Vice Chairman

JOINT PROTECTIVE BOARD, CHESAPEAKE AND OHIO RAILWAY

is on its feet again, and it is earnestly hoped that the experience these brothers have had in the past will be a vast benefit to them in the future, and that each and every member will give his individual attention to the meetings and assist the officers to perform their duties. While at Richmond I had the honor of working with the Chesapeake and Ohio Joint Board, and I say, unhesitatingly, that the proficiency of this board can not be excelled. Bro. W. G. Watkins, General Chairman, and W. H. Onions, Secretary and Treasurer, have the confidence of the members of the board.

April 28 I had Bro. John Blankship, of Lodge 435, examined for the allowance of his disability claim, and if the non-meeting, and I found Brothers L. D. Woodington, James Thompson, Wilbury Henk and Walter Yeakel, looking out for the interests of their members. I am satisfied that the administration of the officers will be the most successful in the history of the lodge, and am convinced that the members would make no mistake by retaining the brothers in office for another year. We were honored by the presence of our Past Grand Master, Bro. Leach.

My next stop was at Reading, Pa. Arriving there in company with Bro. O'Malley, of Lodge 75, we were met at the depot by a committee of 561. With them were the following members of Lodge 174: Brothers Thos. Yost, Geo. R. Klinepeter, S. M. Holtry, G. Keiser, E. P.

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Newlire, J. G. Bless, N. M. Kulm, H. H. Fink, J. E. Wittle, H. O. Hubler, C. E. Soler, G. E. Hass, Walter Mengel and Oscar Williams. We formed in line and marched to the hall, where we found a number of the members of 561. After a handshake and a good hearty welcome, as only Brotherhood welcomes can be, we were escorted to the banquet hall where covers were spread with the delicacies of the season. A more tempting feast could not have possibly been prepared for anyone, and the brothers all did justice on this occasion, especially the brothers from 174. Bro. Yost says Bro. Wittle was undoubtedly the champion eater. After the inner man was satisfied, the Harrisburg brothers got their "goat" ready and proceeded to show the members of 562 how to initiate the twelve candidates, and they more than succeeded, to the satisfaction of all present. The members of 562 were loud in their praise of the brothers from 174, and I heard the members of 562 bid the brothers of 174 to come again and again. Lodge 562 has an able corps of officers in the following: Brothers M. C. Long, A. M. Stover, T. N. Rothenberger, C. E. Hass and C. H. Alexander. These brothers deserve great credit for the manner in which they have handled the offices of their lodge.

My next stop was in New York City, having Bro. Scheiling examined for the allowance of his disability claim. The hours set for the examination were too early for the physicians, and Bro. C. Johnson arranged for 1 o'clock in the afternoon; this was the cause of my not making Spencer, N. C., as I had intended. I found the Erie Joint Board in session in New York, and, upon their urgent request, I worked with them until the afternoon of the 6th, when I left for Spencer, N. C.

My next stop was Spencer, N. C., and after three days' work, Lodge 626 was organized with nineteen charter members. The outlook for the lodge is promising, and under the administration of Brothers Bulick and Linton Buchman, I look for 626 to be among the banner lodges of the South. While at Spencer I found our old friend and brother, J. L. Armstrong, doing service for Uncle Sam. The citizens of Spencer say that Bro. Armstrong is an "ideal" postmaster.

My next stop was Columbia, S. C., the home of Lodge 427. I had a pleasant chat with nine of the members, and found Brothers O. Land, T. C. Remley, G. W. Maxwell, I. Q. Anthony and T. J. Chapman high up in the watch tower, looking out for the interest of their members.

Sunday the 10th found me meeting with Lodge 75. I found the officers and members zealous in the lodge affairs; all were working with but one object in view, that to advance the interest of their members.

Monday morning, May 11th, found me aboard the fast mail on the Pennsylvania Railroad, bound for Harrisburg, the capital city of the State of Pennsylvania, and the home of the largest lodge in the organization. I was prevented from holding a meeting, on account of the death and burial of one of the beloved members, Bro. Lewis Hearns, and the members of Lodge 174 did their lodge and the organization, as well as the memory of their deceased brother, a credit that no one who witnessed the sad and impressive scene will dispute, in their appearance and numbers at the funeral, when a hundred men were in line. The Ladies Society, Pride of 174, No. 60, was represented by Mrs. Thomas H. Redmond. Dorcas Society, No. 40, B. R. T., also attended the funeral in a body. Road Foreman of Engines, J. G. Tregs and Mr. Downs, of the Pennsylvania Railroad, were among the large number in line. It was remarked that it is seldom you see employer and employe in line at the funeral of a departed member of a labor organization, as was the case at Harrisburg, on the afternoon of April 11th. Such recognition on the part of railway officials will do more to cement the friendship that should exist between employer and employe.

Bro. O. L. Miller, who is Marshal of 174, did justice to himself, as well as the lodge he so ably represented. Bro. W. H. Morne, of 174, is a "Beecher" in overalls, in every sense of the word.

In my next, I will give an account of my visits to the lodges along the Reading Railway.

C. A. WILSON.



Third Vice Grand Master.

The trip to the Pacific Coast and return, though quickly made, was a pleasant one. I found the Brotherhood at each place I visited in good condition, with a splendid outlook for the future. I will give the readers of the Magazine a detailed account of my trip to the West.

I left Parsons, Kan., at 2 a. m., April 8th, and stopped over all that day in Kansas City, Mo., leaving there at 11.45

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p. m. for El Paso, Texas, via Rock Island System. All day long on April 9th the train was speeding onward toward El Paso. The weather was all that could be asked for, hence the traveling was not bad. Through southern Kansas could be seen beautiful fields of wheat just beginning to grow, as springtime was now almost at hand. Night overtook us down in the State of Texas, and when the morning of April 10th was at hand we were several hours behind schedule time. On account of the train being delayed we took breakfast at Alamogordo, N. M. This is a beautiful town on the desert, and the day will come when few places in the West will be much nicer than Alamogordo. I met several members of the Brotherhood while there, and was very sorry that I did not have time to stay longer and make the boys a visit, which I will do soon.

About noon of that date I arrived in El Paso, Texas, and was met by several of the members of Lodge 135. We held a meeting that afternoon which was very well attended. Lodge 135 is one of our best lodges in the West, and it is always a pleasure to meet with this lodge. I met Bro. A. S. Hawkins, an old time member of 178, of Salt Lake City, Utah, who is in the cigar business in El Paso. Bro. Hawkins has been an invalid for several years. He has been suffering with locomotor ataxia, and has been unable to do any kind of manual labor. The Brotherhood came to his assistance and paid him his claim, and the insurance enables him to make a living for his family.

My mission to El Paso was to examine Bro. L. L. Cranford for consumption of the lungs, which was done. Bro. Cranford's membership is in North Carolina. I felt very sorry to find this brother in such poor health. While in El Paso I was the guest of Bro. Fred L. Barnett and wife, and my stay was made as pleasant as I could wish for. Bro. Barnett formerly lived in Des Moines, Iowa, and was for many years a prominent member of Lodge 102. While Bro. Barnett is so situated that he can not attend lodge meetings very regularly, he is, nevertheless, an enthusiastic Brotherhood man, as well as Mrs. Barnett is an enthusiastic member of the Ladies' Society. Bro. Barnett has a government position, and is looking after John Chinaman to see that he does not come across the line into the United States from Old Mexico, unless he has papers that entitle him to. I had the pleasure of meeting Mr. Louis Adams, chief inspector in charge, also Mr. Jesse Carmical, his assistant, and I can say that I enjoyed the company of these gentlemen very much. El Paso is one of the thriving cities of the West, and will at some time or other make a fine city. I feel very grateful to all who made my stay in El Paso so pleasant.

On April 11th I started for Phoenix, Ariz., arriving at that place at 8 a. m., April 12th. My mission there was to have Bro. McGowan, of Lodge 164, New Franklin, Mo., examined for consumption of the lungs. I found Bro. McGowan in St. Joseph's Hospital, and in very poor health. I felt very sorry to find this brother so ill. He is a young man and ought to be able to stay with us for many years to come. The 12th of April was Easter Sunday, and the day was grand and beautiful in Phœnix. The bells, in their calling to the people to come to divine worship, seemed to say a thousand times, "He is risen. He is not here." If the morn of the Resurrection 1,900 years ago was such as the one of April 12, 1903, in Phoenix, the inspiration from such a lovely morning would make anyone feel that "He is risen. He is not in the tomb."

In the afternoon, Bro. McGowan and myself went out to the Indian school and saw how Uncle Sam cares for the children of the Noble Red Man. These children, though from the parents of people who have led a wild, roaming life, can say that they are fast learning the ways of the pale face. I heard a chorus of voices of Indian children singing hymns that anyone might care to hear. This goes to show what training and education will do. While in Phoenix, I met Bro. Heath, of Lodge 6, who is in the West for his health. This brother was being cared for by his good wife, who was trying to make him comfortable while suffering from the disease which causes so many to seek the climate of the plains, to try and be restored to health once more.

I left Phoenix the evening of the same day that I arrived there, and while coming away had the pleasure of meeting two members of the Order who are taking care of the head end of the train on the Salt River, Maricopa and Phoenix Railway. One brother belongs to Lodge 10, of Cleveland, Ohio, while the other belongs to Lodge 94, at Tucson, Ariz. The Maricopa and Phoenix Railway is only 34 miles long, but, one thing sure, it runs through one of the most beautiful valleys that ever laid out of doors. Just

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think of it! As early as April 12th, wheat, oats and barley were heading out, and all kinds of vegetation was farther advanced than at any place it had been my privilege to be, either before or since, up to this writing, April 30th. The season in that part of Arizona is earlier than in any other part of the United States, and if anyone cares to know the value of irrigation, just go to the Salt River Valley and be convinced what can be done with the water that comes from the mountains when it is properly handled.

My next stop was at San Bernardino, Cal., and a visit to Lodge 314. Owing to the fact that it was impossible to get a hall in which to meet, we were unable to hold the meeting we would like to have held. However, I feel under many and lasting obligations to Bro. Atwood and wife for the use of a large room in their home, where we endeavored to have as good a time as possible under the circumstances. Lodge 314 is a good lodge, and her members are always up to date upon all matters pertaining to Brotherhood business. I regret very much the poor health of Bro. W. J. Atwood. This brother is suffering with rheumatism, and has been so for a long time. I hope for his recovery at an early date.

After leaving San Bernardino, I went to Portland, Ore., where I had Bro. Albright, of Lodge 167, examined for total disability. This brother has been suffering with locomotor ataxia for more than two years, and now he is permanently disabled for all time to come. I met Bro. Lucas, of 193, while in Portland, and can truly say that it is a pleasure to meet this brother. It was my intention to meet with Lodges 167 and 193, but owing to the fact that the members were quite busy it was out of the question for me to do so.

I left Portland on April 17th and arrived in Missoula, Mont., at 8.30 a. m. on April 19th. Through some mistake or other there was not a very large attendance at the lodge room that afternoon. I was told, however, that 194 was in a splendid condition in every way.

On April 20th I arrived at Pocatello, Idaho, and held a good meeting with Lodge 113. This is one of the best lodges in the Northwest, and it is a pleasure to meet with its members. I was royally entertained by Bro. Pat Hannifan while in Pocatello, and I am under lasting obligations to him for his kind treatment of me every time I go to his city. Lodge 113 can feel proud of one thing, and that is that she has a member who is now a judge, Bro. James Knowles having been elected to that position in the last city election in Pocatello. Bro. Knowles is one of our foremost brothers in that part of the country, and we all feel very proud of his securing this good position. We wish him every success in his new undertaking.

My last stop before reaching home was at Pueblo, where I held a joint meeting with Lodges 59 and 244. I have no hesitancy in saying that these two lodges are hard to beat. I am always glad to be able to meet with them, because we can always have a good time. One thing sure, we have good lodges in Colorado, and the Brotherhood is in a most excellent condition in that State. The recent meeting of our committee with the D. & R. G. management was one of the most successful from a financial standpoint held in many years. There was no friction with the management in getting what our members wanted, and this in itself is much to be thankful for. I think the Joint Board on the D. & R. G. Ry. is to be congratulated for the splendid work it did in behalf of the firemen and enginemen of that road.

It was a long time between visits with our lodges in Springfield, Mo., but I enjoyed my stay in that city very much. Our lodges in Springfield represent firemen employed on the great Frisco System. It is now a race between the Frisco and Rock Island as to which will be the greater of the two. It has been rumored that the Rock Island will take control of the Frisco, but as to this being a fact, at this time no one knows. There is one thing that can't be disputed and that is, each company is a good one to work for.

Before this letter reaches our readers I hope to have several new lodges organized. It is my intention to put in a new lodge at Jefferson City, Mo., on May 3d. This lodge will represent firemen on the Missouri Pacific Railroad.

During the month of May it will be my purpose to visit lodges in Missouri, Nebraska and Kansas, and I hope to hold such meetings as will be of interest to our members at each place visited.

I see no reason why there will not be the largest increase in membership in the months of May and June of this year than in any previous two months in the history of the Order. Should we do as I expect, we will. When July 1, 1903, comes around we want to number 50,000

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members all told. The outlook is splendid; never was it better than now. Let us keep the good work going.

It is a pleasure to meet with a good lodge, and I can say that when I met with Lodge 440, at Monett, Mo., I was highly pleased with the way this lodge does business. I found 440 in splendid condition, and the members can well feel proud of their lodge. The Master, Bro. Kyler, is a very enthusiastic worker in the Order, and to him much credit is due. I will not forget to mention Bro. Blennerhasset, one of nature's noblemen. This worthy brother is known far and near on the Frisco System, and all who know him speak in praise of his work as a Brotherhood man. Lodge 440 can well feel proud of the many members within her ranks that are good Brotherhood men.

On May 2d, in the afternoon, I had the pleasure of meeting with Lodge 414 and had an enjoyable time. The rush of business on the road prevented many from coming out. This lodge is in a prosperous condition and the members are happy.

On the evening of May 2d, I spent a few pleasant hours with the members of Ladies' Society 151, at St. Louis, Mo. The sisters gave a "euchre" and everything went on merrily. This society is one of the most prosperous that it has been my pleasure to meet with, and deserves success, as the ladies are all good workers for the society.

On Sunday, May 3d, I had the pleasure of organizing Capital Lodge 622, at Jefferson City, Mo. This lodge represents the firemen on the Missouri Pacific Railway. Fourteen tried and true men joined hands and will make 622 a banner lodge. I am under lasting obligations to Bro. Berry, of 78, and Bro. Ramsey, of 109, for valuable assistance in instituting this lodge.

On May 4th a very good meeting was held with Lodge 313, Kansas City, Kan., at which a candidate was initiated into the mysteries of the Order.

May 5th was a memorable day for Lodge 31, Atchison, Kan. In the afternoon a meeting was held with the members of 31, and at night a meeting with the members of their families. A pleasant surprise was the coming of Sister Killian, of Sedalia, Mo., who gave the ladies a good talk on the Ladies' Society. The result of this meeting will be the organization of a Ladies' Society in Atchison. Sister Killian was on her way to St. Joseph, Mo., to organize a society at that place, and was requested to stop off and spend a pleasant time, which no doubt she did. After the evening's entertainment the ladies served refreshments, which were enjoyed by all present. This was my first visit to Atchison in a long time. I found the lodge doing well under the leadership of Bro. Martin, Master, and Bro. Brink, Secretary. While in Atchison I was the guest of Bro. McKee, and am under lasting obligations to him and his wife for the way in which I was taken care of. I hope 31 will always prosper in the future as she is doing at the present time.

May 6th will not soon be forgotten by the many who attended the public entertainment and reception given in behalf of Bro. Mooney, the only charter member of Lodge 43, and who now resides in Smithville, Texas. Bro. Mooney was in St. Joseph on a visit, and the members of Lodge 43 wished to show him their appreciation of his long and continued membership in their lodge. Bro. Mooney become a member of Lodge 43 the day the lodge was organized in 1876. He was one of the many to lose their positions in the Burlington strike of 1888. He is still in railroad service and is an engineer on the M., K. & T. Ry., with headquarters in Smithville, Texas. Bro. Mooney is known far and near as a good Brotherhood man and a Christian gentleman. The program rendered during the evening was as follows: Toastmaster, ex-Chief John Broder (to say that Mr. Broder did his part on this occasion would be putting it mildly); address of welcome, Mayor Chas. Borden; instrumental, Miss Nellie Patterson; duet, Miss Nellie Patterson and Harry Patterson; solo, May Morning, Mrs. Chas. Hinkley; address, Hon. Chas. Cochran; music, selected, Miss Walsh; address, L. Mooney; address, Mrs. Killian; address, Conductor Wm. Welsh; recitation, Miss Geraldine Holden; address, C. W. Maier.

After the exercises the ladies served refreshments. Bros. W. E. Sullivan, Tom Holden, Jim Kane and James Shortte were quite conspicuous and made all at home on this occasion. About 400 people were present at the evening's entertainment.

During the afternoon of May 6th, Sister Killian organized a good lodge of the Ladies' Society. Every one present was glad to meet Bro. Mooney once more and wished him Godspeed in his travels through life, and a safe journey home to Texas.

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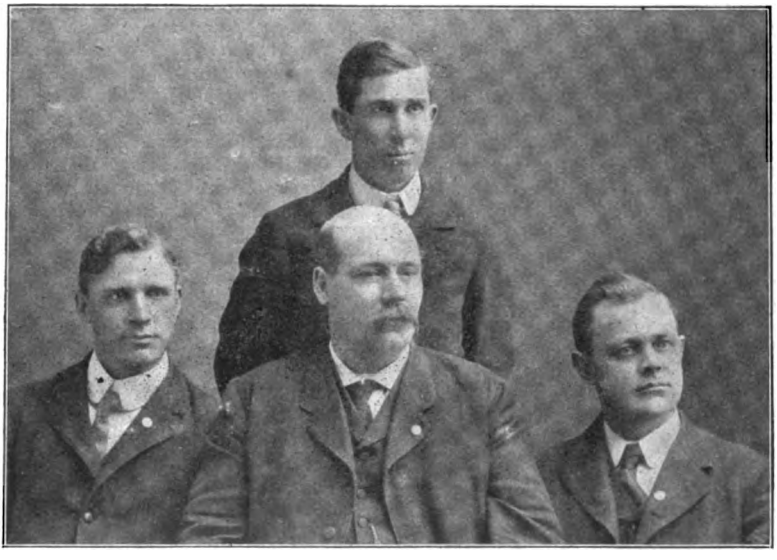
On the night of May 7th, a good meeting was held with Lodge 123, Omaha, Neb. It had not been my privilege to meet with this lodge for a long time, and I found it in good condition. Any lodge will prosper when it has for officers such men as Bros. Carpenter, Graham and Nilson. There was a big strike on in Omaha at the time I was visiting 123. It was no trouble for organized capital to find a judge who would issue an injunction restraining the strikers from holding peaceable meetings of any kind. This judge was compelled to modify his restraining order, and he was willing that the men should meet, but that was all. Remember, laboring men, that government by injunction still lives, and judges will use their powers whenever employers of labor ask them to.

On May 8th I arrived in Fremont, Neb., and was met at the station by a committee from Lodge 523, who helped to make my stay in that city a pleasant one. Lodge 523 is a good lodge, and our members in Fremont deserve great credit for the interest they have taken in making it so. Fremont, Neb., is the home of Bro. W. L. French, of Lodge 254, who is also a member of the Board of Grand Trustees. Bro. French is known far and wide by the articles he has written for the Locomotive Firemen's Magazine, and it is a pleasure to meet this worthy brother.

On May 9th Bro. French accompanied me to Norfolk, Neb., where we held a very good meeting with Lodge 254. Owing to the rush of business on the road the meeting was not very largely attended. This was my first visit to 254, and I hope to be able to go back again soon and meet with its members.

Sunday, May 10th, was a gala day for Lodge 17, Chadron, Neb. A good meeting was held and everything went off nicely. It is not often that I get to visit this lodge, but when I do I appreciate the privilege very much. This is one of our best lodges in the West, and it is a pleasure to meet with her members.

As I close this letter for the June issue of the Magazine the sad news has flashed over the wires announcing the death of the beloved wife of our worthy Grand Master, Bro. Hannahan. This news will be a shock to the many friends of this worthy woman. Bro. Hannahan has the heartfelt sympathy of all our members in the loss of his beloved wife. "In the midst of life we are in death" is the old



C. M. Young, 141

H. W. Bues, 505
Vice Chairman

W. E. Trippeer, 157
Chairman

W. A. Burke, 585
Secretary and Treasurer

JOINT PROTECTIVE BOARD, L. E. & W. RY.

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saying. Let us all live as did our sister, Mrs. Hannahan, so we can all meet in heaven above, and mingle together for all eternity. CHAS. W. MAIER.

♣ ♣ ♣

Fourth Vice Grand Master.

On April 1st I went to St. Johnsbury to visit Lodge 282. The hall being occupied, we arranged to meet at Bro. Brickett's house, but on account of an accident whereby the house was endangered by fire we had to meet somewhere else. This Lodge, although small, has a fine membership and they are keeping the lodge in good condition.

Lodge 307 has been removed from Lyndonville to Newport, on account of changes in the motive power department which will also be beneficial to an increased membership. I had the pleasure of meeting with this lodge in special session and in increasing their members. Bro. Blake looks after the protective features of this lodge.

On arrival at St. Albans, I called a union meeting, at the close of which twelve applied for membership. The members of 352 have been unable to hold regular meetings in the past on account of heavy traffic on the road, but now have a bright future before them.

While in Henderson, I had the pleasure of holding two meetings with Lodge 469 and in seeing its roll of membership increased. This lodge is composed of nearly all engineers, and business is carried on according to the constitution.

While in Houlton, I met several members of 587 in their lodge room, who were well pleased over the new schedule which they had recently obtained. The interests of this lodge are well looked after by Bros. Champeon and O'Brien.

Lodge 476 has a small membership but every one of them is a true Brotherhood man. Bro. Dorrah has been ill for some time but expects to be out soon looking for new members. At Fairville, I found the members of 357 very busy on account of a heavy emigrant traffic to the Northwest, but they found time to hold a good meeting and add to their number. With such members as Bros. Noble and Henderson this lodge will succeed.

I held a special meeting with Lodge 171 and found it up to date and in good condition, considering that a fire last fall destroyed a portion of their hall and effects. The old reliable member, Bro. Dickenson, is still at the front.

At Kentville, Lodge 504 is in good standing and deserves credit for the interest taken by the members in the organization, being isolated from other lodges.

While in Moncton I had the pleasure of attending a union meeting of the Ladies' Society 66 and Lodge 233, B. of L. F. This meeting was well attended, and consisted of readings, recitations, music and speeches. At the close refreshments were provided in abundance. The meeting was arranged by the members of 233 to show their appreciation of the Ladies' Society and to bring into closer relationship the lady members of their respective families. The example set by this union meeting should be more closely followed, that we may encourage and assist each other in our travels through life, and cause as much sunshine as possible to brighten our pathway. I wish to extend my sincere thanks to the members of Lodge 233 for their kind invitation and the many courtesies extended to me while in that district.

My next stop was at Stellarton to visit Lodge 520. We held a good meeting, adding three to the membership roll. This lodge is in good shape financially, and is ably represented by Bro. Blair. Any lodge requiring the services of a conductor (who understands his duties) can not do better than engage Bro. G. Conway, of this lodge.

From Stellarton I went to Sydney to see about the possibilities of organizing a lodge at that extreme point. I found on arrival that a union meeting had been called by Bro. Morris, of 477, and Bro. Scothorn, of 171. At the close of this meeting twenty applied for a charter to organize a lodge in Sydney. This is a very important center, having the largest steel plant in Canada, as well as a great coal industry. I arranged to return and organize the lodge as soon as the charter and supplies could be received from the Grand Lodge.

I met with Lodge 119, at River du Loup, at which quite a number were present. Most of our brothers at this point are of French descent, and I witnessed a member initiated in their language. Bro. C. J. Levesque keeps the boys in line.

While in Ottawa I met with Lodge 172 at its regular meeting, a large number of the members being present, as well as several from Electric City Lodge. A very interesting meeting was held, at which a number were initiated. With such members as Bros. Chisholm, Clendenning, Johnson and Woods, this lodge can not help but prosper.

A regular meeting was held with Lodge 81. This lodge is up-to-date in every par-

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ticular, and the interests of the members are well looked after by Bros. Douglas and Skelly.

I also had the pleasure of meeting our Canadian Legislative Representative, Bro. Hall, who introduced me to several members of the Senate and House of Commons, and from whom I obtained a general knowledge of the business being transacted at this session. There are several bills of great importance to us as an organization and as railway employes, one in particular which is to the effect that any person other than a British subject coming into Canada and advising or inciting a strike is liable to two years' imprisonment. Bro. Hall is using every honorable means to defeat this bill, and we earnestly trust that it will never be placed on our statutes. Another important bill concerning labor is known as the Mulock Bill, which provides in case of a strike that a Conciliation, Meditation and Investigation Committee be appointed to inquire into the causes of disagreement and report to the Government. This committee (if requested by the parties to the difference) may act as an Arbitration Committee. This was formerly known as the "Compulsory Arbitration Bill," but the compulsory features have been removed. There is also the "Guthrie Bill," which makes it illegal for an employe to sign away his rights under cover of any insurance or provident society which may be in effect on any railway. There are several other important measures before the Government which occupy the attention of our Representative, who asks for our assistance and hearty co-operation.

I am more than pleased to see all the lodges in such a flourishing condition, and the great interest taken by our members in upholding the dignity of our organization.

E. A. BALL.

Correspondence

DEATH OF ARTHUR F. DINSMORE—(*Mrs. Hattie Dinsmore Patten, Larimore, N. D.*) My heart is so full over my son's death that I feel like giving some accounts of his death for publication in our Magazine. Arthur F. Dinsmore died December 25, 1902, of pneumonia, at the hospital in Pueblo, Colo. He was sick only three days, and at the time of his death was employed by the Colorado and Wyoming Railroad Company as a fireman. He was 25 years of age, and was a member of Moose River Lodge 282, St. Johnsbury, Vt. He leaves a mother and one brother, Harry, to mourn his loss. Arthur was employed on the St. J. & I. C. R. R. as a fireman for 5 years, then went to Pueblo, Colo., and worked just a month when he was taken sick with pneumonia and died. I wish to thank the members of Royal Gorge Lodge 59, Pueblo, Colo., for the brotherly love they showed in caring for my son's remains. Their kindness I shall never forget. May God bless each and every one that is a member of the B. of L. F. I also wish to thank Lodge 282, St. Johnsbury, Vt., for the same. My son enlisted in the Spanish-American War, with Company D, 1st Vt. Vol., Chickamauga Park. The burial was at Georgia Plains, Vt., in the family burying ground, under the auspices of the B. of L. F. and Company D, 1st Vermont Volunteers.

LODGE 603—(*Member, Sherman, Texas.*) It is with a sad heart and many regrets that I announce the death of a true and trusted brother, C. C. Davies, Traveling Fireman, who was killed in the wreck occurring on the F. W. & R. G., April 12th, at 2:50 a. m., with engine 364. Bro. Davies and a brakeman were sitting on the fireman's seat box. They tried to escape by opening the front window, but were knocked back by the rocking of the engine, and as she made the last turn to the left the engineer and fireman escaped unhurt, but our brother and the brakeman were caught under the engine. Bro. Davies was a young man that any community might be proud of, being frank, honest, intelligent, sincere and generous. He never grew tired of kindly acts, and died not knowing what deception meant. His good nature was contagious and he believed a smile was holier than a tear. He was most deservedly popular with all who knew him, and is one of the first members of Lodge 603 for whom we have draped our charter. His death is most sincerely and deeply mourned, not only by every member, but by his many friends. He leaves a widow, who has the heartfelt sympathy of all who new him, for he was a loving, kind and true husband, a first-class fireman and a fearless one.

Too much thanks cannot be given to the members of Lodges 83 and 440 for

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their efforts to assist and help the widow in her sad bereavement. We also wish to thank the officials for the kindness they showed us in letting our boys off to attend the funeral. The last sad rites were performed in Monett, Mo., at the home of his parents. Many flowers were contributed by his fellow workmen of Grayson Lodge 603.

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LODGE 167—(*C. M. Wall and T. M. Allen, Portland, Ore.*) On February 27th Bro. C. A. Brown, one of our beloved members, was called to make that long trip whence none return. Bro. Brown was sick in the Good Samaritan Hospital for one year and three days, but bore his afflictions with the cheerfulness of a hero, and he was one in every respect. Bro. Brown was a member of Mount Hood Lodge 167 for about 12 years, and he always made it a point to help advance anything that would be of benefit to the lodge, and was a delegate to the convention held in Toronto in 1898. He was buried by the B. of L. E and the B. of L. F., of which he was a member. Our heartfelt sympathy goes out to his aged father and mother, and to his sisters and brothers, who mourn the loss of one who was tried and true.

We wish to extend our sympathy to Bro. M. M. Sayers and children for the loss of wife and mother.

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LODGE 585—(*W. A. Burke, Lima, Ohio.*) Calvin S. Brice Lodge 585 gave its first annual ball Easter Monday evening, April 13th, and the members' wives gave a supper. The whole was a success from start to finish, and was one of the most enjoyable evenings spent among the L. E. & W. firemen for a long time. Our Joint Protective Board was en route to Cleveland that day, and as we were going through Lima, Bros. Counsellor and Simmonds found out that we were on the train and would accept no excuse from us, but made us get off the train and spend the evening with them, which passed off very pleasantly.

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LODGE 64—(*Carl E. Wood, Sioux City, Iowa.*) On April 13, 1903, Sioux Lodge 64 gave its regular annual ball. There were 562 reported on time, and the grand march, headed by Bro. Malsi, pulled a string of 208 of Sioux City's best and jolliest couples. It was conceded to be the best run ever made by any engine crew in this part of the country. At 2:30 a. m., Bro. Wulf registered the train out for home with the happiest lot of passengers that ever put in a long evening at a social hop. There is not a hall in Sioux City that will accommodate Lodge 64 at its social functions. They are talking of postponing their annual ball until later in the season that they may ask the city council to vacate one of the principal streets to accommodate the people who always patronize their annual ball. The committee on arrangements consisted of Wm. H. Malsi, C. L. Gardner, Geo. F. Wulf, H. H. Gray, Wm. H. Haley and M. J. Ford.

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LODGE 547—(*E. F. Hatfield, Oelwein, Iowa.*) Bro. Charles Kahle, a member of our lodge, died at 11 o'clock, Wednesday evening, April 15th, at Marshalltown, Iowa. He had been running a switch engine there for some time, when he contracted typhoid fever. He was an exemplary and industrious young man, and was loved by all who knew him. Bro. Kahle was one of the charter members of our lodge and was in a short time elected Master. This is the first loss May Flower Lodge has suffered since organizing. The deceased leaves a wife and baby to mourn his loss.

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LODGE 303—(*Member, Kankakee, Ill.*) On Easter Monday night, April 13th, Villa Park Lodge 303 gave its second annual ball at Radeke's hall, Kankakee, Ill., which proved to be one of the greatest successes of the season, both socially and financially. The hall was beautifully decorated with bunting, flags, headlights and lanterns, and the brothers spent considerable time in this work. At 9 p. m. the orchestra played the grand march, in which 125 couples participated. The march was led by Bro. Mose Cantlin, assisted by Miss Margaret Leonard. Too much credit can not be given the arrangement committee, Bros. M. Cantlin, chairman; H. Tubb, assistant; and H. N. Watson, J. Waugh and E. J. Cantlin for the active part they took in making the second annual ball a grand success. We wish also to return special thanks to our superintendent, Mr. H. A. Ziesel, Mr. Peter Maher, our master mechanic, and Mr. F. Smith, our train master, for courtesies shown us in giving us a special train from Streator to Kankakee and return, and for headlights, flags and lanterns that were used in decorating the

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hall. We wish also to thank very much the wives and friends of our members for the excellent manner in which the refreshments were served, and they will always be kindly remembered by the members of 303. Bro. Corcoran acted as cashier for the ladies and fulfilled his position in a most efficient manner. At 4 a. m. the orchestra played "Home, Sweet Home," and the crowd departed after having spent a delightful time. May success follow Villa Park Lodge 303 in all her future undertakings.

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DEATH OF BRO. JOHN CATE—(*O. C. Van De Mark, Concord, N. H.*) Granite State Lodge 306 mourns the death of Bro. John Cate, who died after an illness of two weeks of typhoid fever at the home of his parents, Mr. and Mrs. Sam Cate, London, N. H., on Tuesday evening, March 31, 1903. The remains were buried near his home in the family burying ground. In the death of Bro. Cate, the Brotherhood has lost one of its most promising members, and the B. & M. R. R. a trustworthy employe, honest and upright in all his dealings. To the grief-stricken parents we tender our heartfelt sympathy.

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DEATH OF BROS. WALLACE DURYEA AND JULIAN RITTER—(*M. O. Davis, Pueblo, Colo.*) The Scythe of Time has invaded our ranks and cut down two of our members. Bro. Wallace Duryea was killed April 6th, near Monclova, Mexico. He was underneath disconnecting a broken eccentric strap when a following train crashed into the rear of his train, mangling and killing him instantly. The flagman was out and told the engineer on the following train that the disabled train was about 4 kilometers ahead, when in fact it was but 1. It was on a heavy grade and on a curve, and they crashed into the disabled train before they knew it. Bro. Julian R. Ritter was working out of Denison, Texas. He was backing the engine and way car when the tank left the track and the engine turned over, burying Bro. Ritter underneath. His body was brought to Pueblo and buried by the B. of L. E. and B. of L. F. Bro. Duryea was buried by the Masons in Mexico.

In the death of these two brothers the Brotherhood of Locomotive Firemen lose two good members. Bro. Ritter was a charter member of Lodge 244. We extend the sympathies of the Brotherhood to the bereaved relatives.

LODGE 573—(*Member, Roswell, N. M.*) The boys are all smiles, as the stock rush is on hand and all doing well. Several new faces have made their appearance and are spading the black diamonds ahead of stock trains. Our little lodge is doing nicely at present and several names are being added to the list, besides several more applications are awaiting approval. We expect to have our little road solid with Brotherhood men, as we have some hard-working brothers for the Order.

Bro. J. H. Bryant had the misfortune to get his foot mashed while taking coal at Partales last week, being caught between the cab and bucket. I am glad to say he is not seriously hurt. I term him as "brother;" he is not yet a member, but is on the road and soon will be. Bro. W. G. Taylor had the misfortune to fall from the running board of his engine and injure his spine, but is now able to fire a switch engine at Roswell. We hope to see him back on a ten-wheeler again soon. "Dad" McKanna, of Division 130, B. of L. E., Emporia, Kan., has been with us several days instructing the boys in regard to several patents he has, the most important of which is a device for transmitting train orders of the 19 form, or messages. It is one of the simplest and most valuable things of the twentieth century. A cut of the invention may be seen on page 190 of the April issue of the Locomotive Journal, also his portrait. He is very interesting, and we are always glad to have the old gentleman with us. He served for 43 years running a locomotive. The A., T. and S. F. has adopted his order patent, and he expects to have an advertisement in the Locomotive Firemen's Magazine as soon as he can return to his headquarters at Emporia.

The boys have an increase in pay since March 1, 1903. Formerly passenger pay was $2.10, and freight pay was $2.30 per 100 miles. The new scale calls for $2.20 and $2.30 on passenger, and $2.40 and $2.50 on freight. the differences being on account of the different classes of engines.

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LODGE 566—(*Member, Fresno, Cal.*) The gentle spring breezes that frolic over the green wheat fields so gayly picked us up and brought us back to life once more, to chronicle the few items of interest from Yosemite Lodge 566. Bro. Bland, from the Needles, the genial General Chairman, paid us a flying visit. We are always glad to see you, Bro. Bland, and the lodge extends you a standing invitation. Bro.

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Guy Fish, of San Bernardino, and Bro. Bland, spent a few days down by the seashore listening to what the wild waves are saying. Send us up a box of cigars and we will say no more. Our esteemed friend and loyal brother, Dr. Emerson, has also been flirting with the mermaids down at Santa Barbara, that beautiful city by the sea. The Doctor has disposed of his millinery establishment at Fresno.

Did you see the two bondholders in San Francisco, Bros. Hans White and George Mounce? Nothing was too good for them. Bro. White purchased an automobile, to show Bro. Mounce that his heart was in the right place, and showed him, Bro. Mounce, the sights. Bro. Mounce said he enjoyed Bro. White's hospitality very much, only his neck was a little sore from looking at the tall buildings.

Bro. Fenwick has purchased for himself a beautiful home overlooking the sea. Bro. Gertin, who was promoted from the left to the right side a few months ago, has certainly done credit to the fraternity. Let us take Bro. Gertin for an example and see if we can not do equally as well. Bro. Chas. Dalton has bowed down to the inevitable and has taken unto himself a little fairy and will settle down to housekeeping—this is a secret.

Our new Secretary, Bro. Bevington, has certainly made a success at handling the records of the lodge, and takes great interest in the welfare of the Order. Bro. George Parks, from the raisin district, well known as "Society George," contemplates starting a dancing school to teach the clam diggers the poetry of motion. Bro. White recommends sending to San Francisco for a young lady dancing teacher. Bro. Dalton says Bro. Barney Swearinger would make an excellent batter for a base ball team, for he can hold the "stick" to perfection. Bro. Fitzpatrick has all the girls along the line in love with him, although Bro. Cramer says it is him they are after. However, we are inclined to think it is Bro. Fitzpatrick, and not his fireman. Bro. Chas. Lamb, the big merchant of the firm of Adams & Lamb, crosses the bay quite often. Some day we expect to see him with a "rib" on his arm to share his joys and sorrows.

Have you seen Arthur (Hobart)? Just get a copy of the Raisin City News and it will tell you all about our big-hearted friend, Arthur. Bro. Judy has entirely recovered from the severe blow on his head, received from a mail crane while leaning out of the cab window looking at the brakes sticking. We are inclined to think he saw a vision that caused him to get his head out too far. However, Bro. Judy gets down to the deck every time he sees a mail crane.

The Santa Fe is building a line from Point Richmond to Oakland, Cal., and expect to be running their trains into Oakland in a very few months.



DEATH OF BRO. SCOTT PATTERSON—(*M. M. Miller, Detriot, Mich.*) For the fourth time in the last three years, death has knocked at the door of Standard Lodge 158, and this time it was to call our worthy Vice Master and brother, Scott Patterson, who met his death in a head-end collision at Lenox. It was on the morning of April 25th that Bro. Patterson was called to take local freight train No. 70 to Port Huron, and he had about finished his journey and was waiting in the siding at Lenox for passenger train No. 5, expecting in a short time to have his trip finished, but for some unknown reason the head brakeman failed to turn the switch for the main line, and as the switch lamp was out no one noticed the mistake until it was too late to avoid the terrible accident. Train No. 5 crashed into the local standing on the side track with terrible force, burying Bro. Patterson under the tender and wreckage of the cars. Train No. 5 was in charge of Engineer Leonard Neil, of Division 122, B. of L. E., who was killed at his post, his fireman being badly hurt. It was a sight that made men old in the service turn away, and tears to spring to their eyes. It was a sight that those who saw it will never forget. It was seven long hours before they could get the body of Bro. Patterson released.

"Are they not heroes? Have they not died
Under the engine, side by side?
Calm, undisturbed, be the peaceful repose
Of the men who died in their overclothes."

Little did Bro. Patterson think when he kissed his mother good-bye that morning that it was to be good-bye forever, and he started out on the run that had no ending. The death of Bro. Patterson is a loss to our lodge that can never be replaced, as he was always ready to take an active part in everything, and was a member of the Joint Protective Board on the Grand Trunk Railway. It was not long ago that he was called upon to perform the same services for our late broth-

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er, Richard Moffatt, that we have just finished for him. We can not say too much in praise of Bros. Geo. McKay and L. W. Heiser for their prompt action in going to the scene of the wreck, and taking charge of the remains of Bro. Patterson, bringing them to his home on the following train.

The funeral services were largely attended and the floral offerings were grand, showing very forcibly the high esteem in which his many friends held him. The remains were taken to Spring Lake, Mich., for burial, accompanied by members of Standard Lodge 158 and many friends. The members of Standard Lodge want to thank the officials of the Grand Trunk Railway for their kindness shown, and also Locomotive Foreman C. E. Main, in making arrangements so as to allow as many of our members to attend the funeral as possible. The members of our lodge extend their loving sympathy to the mother and sisters of our late brother, and our earnest prayer is that our Heavenly Father will make their burden as light as possible for them to bear.

Forbear, dear friends, to mourn and weep,
While sweetly in the dust I sleep.
But when you come my grave to see,
Prepare yourselves to follow me.
Death did not one long warning give,
Therefore, be careful how you live.
Prepare in time—do not delay—
For I was quickly called away.

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J. P. B., L. V. R. R.—(*A. E. Ridgeway, Athens, Penna.*) The annual meeting of the Joint Board of the L. V. R. R. was held in Buffalo, April 16th to 18th, inclusive, and it was one of the best meetings the Board ever held. The J. P. B. has done good work in the short time it has been organized, and is on the best of terms with the officials. Bro. J. Wilkins, of Lodge 211, was elected General Chairman, and the brothers made a good choice. All he needs is the support of the brothers.

While in Buffalo we stopped with Bro. M. Curry, member of 472, and the members of the J. P. B. can not speak too highly of the way they were entertained by Bro. Curry and his sisters, and also the rest of the brothers of 472. When the Board adjourned we were invited to attend a banquet given by 472, which was greatly enjoyed by all.

Bro. Curry has just started in the manufacture of cigars, and any brother who smokes should try one of them and smell the sweet union flavor. Best wishes for the success of Bro. Curry and the members of 472 are the sentiments of the members of the Joint Board.

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LODGE 153—(*H. J. Bradley, Ft. Scott, Kan.*) We started the first of the year with a ball. All the boys worked overtime that night and made it a success. We have now been assigned to regular engines, Baldwin Compounds, on the main line. They pull 2,500 tons, with lots of Kansas real estate on the tanks. On the branch we have Rogers and Baldwin engines, with all the cars on the division behind them.

There has been quite a number of deaths while on duty. On January 22d, train No. 4, at 1:30 a. m., went into an open switch at Turnback Spur, resulting in the death of Engineer Fred Fisher and crippling Bro. Ed. Gilbert for life through the loss of his right arm. On February 28th, the 140 struck a brake beam 1¼ miles north of Arcada, and Bro. E. Kanslear was scalded quite seriously. Both these brothers are now out and around. The worst accident was the one that happened on April 21st, at Everton, when 103 struck a broken rail and went into the ditch, resulting in the death of Engineer E. Mead, Fireman Bro. C. B. Coffman and Mail Clerks C. Wilkins, D. Columbia and C. Campbell. Bro. Coffman was laid to rest by the lodge on the 24th. The members turned out in force, and our charter is draped in mourning.

We have a strong lodge here now and most all the firemen are Brotherhood men. By July 1st we will have them all, as they now all have application blanks. The goat has been doing some rough work after resting quite a bit last winter. We have changed our meetings to 2:30 and 7:30 p. m., alternate Tuesdays, so that the boys on the locals and passenger runs may be with us at times. We would like to have some of the Grand Lodge officers call on us. The Joint Protective Board is now in session at Springfield, working on a new schedule.

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LODGE 182—(*W. H. Fitzgerald, Bluefield, W. Va.*) I am now running out of Bluefield, having been promoted to the right-hand side, and am a member of 448, B. of L. E., but could not forsake the old stand-by, one of the greatest labor organizations in America. Lodge 182 is flourishing and is always on the advance, with a live set of officers in the chairs,

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such as Bro. J. S. Raike, Collector, and Bro. Moore, Master. I have never visited 446 since I have been here, but expect to soon. This lodge is composed of a lively and wide-awake set, and they are taking in new members at nearly every meeting. I have many good wishes for the B. of L. F. and its officers.

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LODGE 86—(*Member, Laramie, Wyo.*) We would like to tell the brothers and sisters what a success Lodge 86 had with its ball on April 22d. Bro. Harnish had full charge, and he and his assistants did all in their power to make it a success. Every brother was at their back to lend a hand where needed, and you may be sure it was a grand success in every way, making our treasury swell about $100. Jewel of 86, L. S., gave the supper. The ladies worked hard but were successful as were the brothers, clearing a little over $25. Now that our ball is over for another year we are turning our labors to looking for new members, and are glad to report that we expect to get in 10 new members by the Fourth of July.

I am sorry to report that one of our old stand-bys, Bro. E. Johnson, is going to Alaska in a few days. We wish him success and hope he won't be long in getting his bag of gold, and then return so he can be among us again.

In the past year there has been a number of our brothers promoted to the right side, among them being our Master, C. V. McLaughlin; Vice-Master, Ed. Palmquist; Collector, G. W. McAllister; and Bros. A. Noah, P. Pearson, W. Frazier, H. Hanson, M. Atwell, J. Humpfner, J. Watkins and several others who did not belong to 86.

Business is picking up a little here; three firemen were hired this week.

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LODGE 134—(*John Lorimer, Farnham, Que.*) The week ending April 26th has been the banner week for old 134, having initiated 11 members. I guess the goat is getting sore on the back, but we will have to take extra good care of him, for his work is not done, having six applications yet to attend to. Some of our new brothers say that the goat is awful rough, but you know, brothers, he has to take care of himself all winter. With us running in the pool system we couldn't give him the gentle training he requires.

No doubt the membership at large will be surprised to hear from 134, but we have been rushed so hard that it was impossible to hold meetings at all; however, we are trying to make up for lost time, and I think at the rate our old veteran, Archie McDonald, is getting out application sheets we will be able to be about on time with the rest of the boys at the end of our fiscal year, June 30th. Bros. McNeil, Timmons, C. Shufelt and Bryant are a good initiation team. If anyone doubts this, ask Bros. Diamond and Mansfield. Our hall is big and airy, but I think the hanging lamps had to be taken down to enable Bro. Drew to ride the goat properly; he is only 6 feet 3 inches.

The past winter has been an exceptionally busy one on this division, and a good many of our brothers have gone over to become eagle eyes. All have done credit to themselves and 134. Our worthy Fourth Vice Grand Master, Bro. Ball, made us a call some time ago, but I am sorry to say there was not enough members available to hold a meeting. Come again, Bro. Ball, and I am sure the boys of 134 will be glad to have you, and I think now that business has fallen off a little we could make up in numbers what we lacked during your previous visit.

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LODGE 345—(*Member, Ft. Smith, Ark.*) Lodge 345 is getting along very nicely. At our last regular meeting we took in two new members and have several others to instruct at our next meeting. Our boys are all getting along fairly well, and all seem to feel good, as promotions are coming pretty fast. Bros. C. G. Brocchus, W. T. Corrotto, R. T. McConnell and J. J. Carroll were all placed on the right side the first of this month. All are reliable men and we feel that the company has made no mistake in promoting them.

Quite a number of our brothers are temporarily on construction work on the Arkansas and Choctaw, a new line of the Frisco, which runs from Hope, Ark., to Ardmore, Indian Territory, crossing the Texas Division at Hugo, Indian Territory and the Red River Division at Madil, Indian Territory. This promises to be a good division to work on, and several of the boys expect to remain when the road is open for business.

In one respect we are all sorry to lose Bro. McLaughlin, our worthy Master and Collector, who has just been placed on the St. Paul Branch out of Fayetteville, Ark., but we are pleased to know that he has a much nicer run and is with his family for supper and breakfast. Bro. McLaughlin has been one of the best workers that ever

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entered a B. of L. F. hall, and we all know that a good B. of L. F. man is a good man in any country. May nothing but success crown his every effort is the wish of us all.

Our new M. M. is making himself known among us; we trust, however, that all will end well. He is somewhat of a "compulsory promotion" man, and we do not like to take medicine when we are feeling well, see?

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LODGE 528—(*C. H. Roberts and E. C. Ward, Galeton, Penna.*) We are seldom heard from, but we are still doing business at the same old stand and in the same old way. We have about 97 per cent. of the boys on the B. S., and every one stands ready to put a shoulder to the wheel and help push the good work along. We are way up here in the woods where the sun only shines a few hours a day, but a more wide-awake or better lot of boys you will not find in a good many days' travel. The lodge is out of debt and has some money in its treasury, and we have no one to thank but ourselves. We have never been honored by a visit from our Grand Officers since the lodge was organized. Bro. J. A. Leach, the founder and father of our great Order, did us the honor to meet with us on April 19th, and helped to initiate Bro. H. V. Colbert, who said he got his money's worth. After the lodge business was gone through with Bro. Leach gave the lodge an interesting talk on the good of the Order, and of the many blessings that had been visited upon our great Brotherhood by the widows and orphans.

Brothers, what a grand thought it is when you bid your wife and prattling little ones good-by, and go to the shops and out on the road, to think that if you should never look on their faces again in this world they will be taken care of, and means furnished to school and clothe your little ones. The great Brotherhood will look after them. Is it not a happy thought?

We left the lodge rooms at about 12 o'clock, midnight, to go to the banquet rooms of Geo. Heymanns, on Main street, where an elegant banquet was served in honor of Bro. Leach. Too much can not be said in praise of the work of the committee, and for the layout and style in which Mr. Heymanns served the Order. The way the boys ate was a caution; and the colored waiters said next day that their feet were blistered, and you wouldn't wonder a bit if you could have seen them. Bro. Pierson, of Lodge 127, Winnipeg, Canada, was present and took part in the meeting and enjoyed the banquet. We broke up about 2 a. m., and after bidding all good night amidst handshaking we left for our various homes feeling that much good had been done and hoping to meet soon again. May God bless our Order and the good and brave boys that belong to the B. of L. F.

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DEATH OF BRO. A. J. H. OSMOND—(*E. A. Niederstadt, Saginaw, E. S., Mich.*) I write to convey the sad news of the death of Bro. A. J. H. Osmond, who met death at his post as fireman, May 3d, at Mayville, Mich., in a head on collision between two passenger trains, Bro. Osmond being killed outright and buried beneath the wreckage. The cause of the accident has not as yet been fixed. Bro. Osmond leaves a wife and small child, a host of friends, and all members of the B. of L. F., of which he was one of our best members, to mourn his loss. Bro. Osmond was most noticeable on account of his desire to improve his immediate family surroundings, which he had accomplished to an amazing degree. He would have been permanently promoted this coming winter, he having run for some time last winter. The funeral was conducted by Lodge 286, Bro. M. Cain acting as Master, and Bro. Ora Potts in his official capacity as Chaplain. Perhaps the largest turnout of B. of L. F. members known here was in attendance at the services, as well as was a large number of friends and relatives. The floral decorations were the most abundant and beautiful that have ever been seen in this locality.

Bro. P. K. Pierce was slightly injured in this same wreck. Bro. Pierce was our delegate to the last convention. He was firing the opposite run but escaped serious injury. Mail Clerk Plagel was killed, and nearly every person on the train was more or less injured. Both engineers were also injured, Engineer Terrance Kelly not being expected to live.

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LODGE 520—(*Member, Stellarton, N. S.*) Stella Lodge 520, on April 19th, had the extreme pleasure of a visit from our Fourth Vice Grand Master, Bro. Ball, which was his first official visit. As some of our boys at other points did not know in time of his coming they could not get there. However, the rest of the boys turned out in good style to welcome him. We had the goat working to perfection on

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three candidates on whom Bro. Ball, as Master, and Bro. Conway, as Conductor, gave the degree in a number one manner. After the candidates were admitted as members of the Order, Bro. Ball gave us a talk on "The working of the Brotherhood in general," in which he is well versed. Our Canadian brothers (at the convention) could not have selected a better man for our Canadian Vice Grand Master, as he is a Brotherhood man of the "finest," and, although he is "a new man in the ring" he will, I am sure, prove successful. The boys here are highly pleased with him, and the brothers who elected him should feel doubly proud. Bro. Ball, in company with Bro. Conway, left here for Sydney, the Iron City of Canada, with the view of starting a lodge, and I believe they will find no difficulty in so doing. Bro. Ball is going to organize a lodge in Campbellton, N. B., and if successful in Sydney the B. of L. F. can float its flag all over this system, add two more lodges to the Order, and add greatly to the use of the "extra" man, our Fourth Vice Grand Master, or representative of the B. of L. F. lodges in Canada. However, we shall be found, with calm and constant diligence, awaiting his next official visit.

The membership of our lodge is still increasing, and moreover the membership of the Order in general. Our Grand Officers, every one of them, are doing good work across the line, and may they ever continue to do so.

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DEATH OF BRO. G. R. BOWER—(*John P. Meehan, Clinton, Ill.*) It is with profound sorrow that I announce through the columns of the Magazine the death of our esteemed brother, G. R. Bower. I esteem it an honor and a task of friendship to commemorate the death of one so worthy of our love, and pay a tribute to our deceased brother. The mournful occurrence of but a few weeks ago was caused by an operation, performed for appendicitis, at the Brokaw Hospital in Bloomington, Ill. Just in the prime of his life, when all seemed to him so clear and bright, death removed him from our midst. In life he was an honored and respected citizen, beloved by all who knew him. To mourn his loss he leaves a devoted father and a loving sister and brother.

A special train bearing the remains of Bro. Bower, members of Blooming Lodge 40 and Main Line Lodge 176, B. of L. F., and State Center Lodge 41 and P. H. Morrissey Lodge 67, B. of R. T., of which order he was also a member, accompanied the remains to Oceana, Ill., for burial, the home of his childhood. The funeral services were held from the Baptist Church, and the sermon that was preached was one that stirred the tender emotions of the vast assemblage and brought tears to the eyes of many. After the sermon had been preached, and while a sad dirge was emanating from the organ, the body was taken from the church and placed in the hearse, to be taken to its last resting place in the silent city of the dead. The floral offerings which accompanied the body, and which served to brighten the grim aspect of the grave for a few days, were most prolific, and their sweet aroma was wafted to the sky as the body was placed in the tongueless silence of the dreamless dust. Tenderly and lovingly was the beautiful and impressive ceremony of the Brotherhood of Locomotive Firemen performed at the grave by Bros. Crumbaugh and Ramage, of Lodge 40.

Farewell, dear brother, a long farewell. Your sorrows and suffering are over, and may each of us that live, join you at last on the beautiful, heavenly shore.

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LODGE 94—(*G. A. LaRocque, Tucson, Ariz.*) Our lodge is up and booming. We held a joint meeting with the Ladies' Society not long ago and a splendid time was had, and may they come often. The ladies, like the good souls they are, saw that we had a good time, and everyone enjoyed themselves. Business has been rushing with us here, and it is a hard matter to get as many out to lodge as we would like. After the meeting was over we adjourned to the banquet room where the ladies had a nice supper prepared, and we ate until we could eat no more. After the supper, the music was started, and, of course, we could not all of us sit still, for a number of us had our feet charmed by the music. Since then, on May 7th, we had a picnic at Sabeania Canon, where we had a splendid time and everybody was pleased with the day. Hurrah for the ladies for thinking as they do of the welfare of the brothers.

We are looking forward to a visit from our Third Vice Grand Master, C. W. Maier, and may it be soon, for we all feel the need of his presence, and a good lecture from him to keep our spirits up. We have lost one of our brothers whom we all loved, for he was always the life of our party. Bro. McGrath will always

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be remembered among us, and our heartfelt sympathy is extended to his relatives and friends.

We wish all a prosperous year, for we feel that we have prospered. Let us all give three cheers for what our Joint Boards and Grand Masters have done. Long may the Brotherhood live, and our members be brave and true. Again, let cheers go out to those who worked so hard for us.

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LODGE 174—(*Member, Harrisburg, Penna.*) I wish to mention in the Magazine what Harrisburg Lodge 174 is doing in regards to increasing the membership. May 10th was one of the busy days for old 174, as we had to hold three sessions. We started in at 9 o'clock in the morning and wound up at 11.30 p. m., and when we counted up our initiations we found that we had taken in 39 candidates and one reinstatement, making 40 in all. Our goat had all it wanted to do when they all got through riding, for it is one of the "finest," so the candidates say. I think Bro. Harry Thomas will never forget the time he tested his strength in 174. We had 230 members at lodge on May 10th, during the three sessions. The boys are beginning to wake up. Since we have our new goat it is no trouble to get members to lodge when we have a candidate to initiate, and we have them at most every meeting. We have 15 applications for May 24th, and by July 1st we are going to try and reach a membership of 500. Our membership now stands at 470 beneficiary members and 10 non-beneficiary members. We have some hustling members, among whom is Bro. J. L. Redman, who is making a great attempt to win the watch that Bro. Gear is going to give the member who secures the most candidates up to July 1, 1903.

Harrisburg Lodge 174 is again in mourning for the loss of one of its members, Bro. Louis Hains, who died May 7th, of consumption. He was better known among the railroad boys as "Bud" Hains. This makes four deaths in our lodge since January 1, 1903. We must give great credit to our worthy Master, Bro. Yost, for the way he gets the members to attend a funeral. At the funeral of Bro. Hains, he got 84 members to attend, and it happened that one of the members caught First Vice Grand Master, Bro. Wilson, going through Harrisburg, and he asked him to stop off and help us out in our trouble, which he did, and we all thank him very much for the same. We all hope when Bro. Yost steps down from the Master's chair he will not forget that there is a lodge of the Brotherhood in Harrisburg. Bro. Yost is one of the best relief committeemen that we ever had, and when "Old Tom," as he is better known, is gone, he will be missed by the members of 174, for he knows how to attend to the Board of Relief work.

I must say also that we have a good set of officers, who are up to date in everything. Our Ladies' Society, Pride of 174, No. 60, is on the boom and increasing in membership at each meeting. It would be a good thing if every brother of 174 would get his wife, mother or sister to join the society and swell its membership up to that of 174. Brothers, do not forget our anniversary, July 8, 1903, and let us make it the best we have held yet.

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LODGE 295—(*H. Buchholz, Raton, N. M.*) This Lodge has quite a number of absent members scattered over the country, some in Old Mexico and Canada, and, while it would often be more convenient and beneficial to them to join a nearer lodge, yet they prefer to retain their membership in old Hillside Lodge 295, a fact which in our estimation does them credit. For the information of these absent brothers, I will say that Hillside Lodge 295 is still above the 100 mark, and is growing both in membership and financially. We have vacated the old hall on the corner, above Shaw's grocery, where many a battle was fought, and have moved to more convenient quarters. The Trustees, Bros. M. Tomlinson, James Snodgrass and S. A. Apgar, have by order of the lodge purchased a new roll-top office desk, which we all, and especially your humble scribe, appreciate very much.

The closing fiscal year has been for us a prosperous one. We have gained in strength through increased membership and our finances are in good shape. We have lost two members through accident, Bro. Wm. Bendler, who was killed by striking an iron bridge just west of Hillside station, on June 3, 1902, and Bro. Timothy Donahue, who lost his life in the Southern Pacific wreck near Tucson, Ariz., last winter. Our worthy Master, Bro. S. A. Apgar, is at present at the Railroad Hospital, at La Junta, Colo. While attempting to board his engine his foot slipped, throwing same under the driving wheel, which crushed it so that it had to be amputated. The lodge soon thereafter passed suitable resolutions ex-

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pressing the sympathy of the members to Bro. Apgar and his family, and we all hope that the unfortunate brother will soon be among us again.

Business has been good all winter, and quite a number have been promoted to engineers. We hope tnat our absent members, and the members of the B. of L. F. in general, may be prosperous. We send our greetings to all.

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DEATH OF BRO. A. M. WILLIAMSON—(*Member, Lodge 512, Hagerstown, Md.*) For the first time in many years our charter is draped, in memory of Bro. A. M. Williamson, who departed this life May 2d. Bro. Williamson was making his first trip after being off for two or three weeks, and had almost completed his run. When coming into the yard, some one failed to throw a switch and, coming in on the siding, the engine struck some heavy coal cars and turned over. Bro. Williamson was thrown and killed almost instantly. Death casts upon all a feeling of despair, even though all men are born to die. Yet when it overtakes one of our own so suddenly as it did our brother we are plunged into deepest sorrow, and can only bow our heads and say, "Thy will, not ours, be done." Bro. Williamson was in the prime of life, just 27 years old. He leaves to mourn his loss a young wife and son, mother, father, sisters and brothers. His family has the sympathy of all the members of his lodge. He was laid to rest in the Methodist burying ground, and the services were conducted by the B. of L. F. There were some beautiful floral offerings from the B. of L. F. and others. Let this sudden death be a warning to all, and let us not be sleeping while the Master is awake, but let us go forth with renewed courage and strive to elevate ourselves among the best of men, so that when our run is completed here, we may arrive safely at the Grand Union Depot.

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DEATH OF BRO. W. J. VANCE—(*R. N. Martin, Atchison, Kan.*) Again is Lodge 31 called upon to record the loss of a brother. Bro. W. J. Vance was killed at St. Joseph, Mo., on March 25th. He had just taken water and gave the engineer, Bro. Hall, a signal to back up and couple on to his train, when he must have slipped or tripped on something, as he fell off the back end of the tank and all four wheels passed over his body, killing him instantly. Bro. Vance had been firing this run for 17 years for the same engineer, having waived his rights to promotion, and was a very careful man. Had I been called upon to pick out a fireman whom I thought would never get hurt I would have named Bro. Vance. Bro. Vance leaves a wife and four children to mourn the loss of husband and father, to whom Lodge 31 extends its sincere sympathy.

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DEATH OF BRO. THOMAS C. CULPEPPER—(*H. T. Davidson, Augusta, Ga.*) In the sudden and terribly untimely death of Bro. Thomas C. Culpepper, in the recent passenger train wreck at Redan, twenty miles east of Atlanta, on March 31, 1903, Stone Mountain Lodge has lost a valuable and beloved member, a staunch and loyal friend and a good brother.

Thomas C. Culpepper was a young man of sterling character, esteemed and respected by all who knew him, as a member of our Order, and our lodge particularly. He enjoyed the confidence and had the esteem of all his brethren and associates, who indeed feel his demise keenly and mourn his loss profoundly. Bro. Culpepper was 30 years of age when overtaken by the awful calamity at Redan and lost his life, not through any fault of his or through any negligence on his part, but through the criminal carelessness of the negro flagman who slept when he ought to have been displaying his flag, the negro flagman who left the switch open, causing the passenger train to run into and collide with a number of loaded freight cars. Bro. Culpepper's untimely death cast a deep gloom over the lives of the dear ones whom he left behind, and for whom he cherished the greatest affection. He left behind him a fond wife and two infant sons, three years and six months old, respectively. He was an exemplary, kind and devoted husband and father.

Stone Mountain Lodge 332, B. of L. F., extends to the family of our departed brother its deepest and most heartfelt sympathy. May the Lord comfort and shield them.

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Official

The Home Account.

The following donations were received at the Home for Aged and Disabled Railway Employes for the month of April, 1903:

B. of L. F. Lodges—44, $2; 86, $3; 108, $10; 267, $28; 325, $5; 430, $7; total	$55 00
L. S. to B. of L. F. Lodges—5, $5; 43, $5; 57, $5; 64, $5; 69, $2; 86, $5; 104, $3; 109, $5; 122, $5; 163, $5; 174, $2; total	47 00
O. R. C. Divisions	64 00
B. of R. T. Lodges	86 00
B. of L. E. Divisions	44 00
L. A. to O. R. C. Divisions	17 00
L. A. to B. of R. T. Lodges	38 00
G. I. A. to B. of L. E. Divisions.	30 75
Members of Lodge 526, B. of R. T	5 00
By error in addition of receipts, November, 1902	3 00
Grand total	$389 75

Miscellaneous.—O. R. C. 273, 17 sheets.

L. A. to O. R. C. 3, 12 sheets, 4 pillow slips; 68, 2 sheets; 140, 1 sheet, 16 pillow slips, 8 towels; 148, 7 sheets, 12 pillow slips, 9 towels.

L. A. to B. of R. T. 39, 6 sheets; 98, 7 sheets, 10 pillow slips; 160, 6 sheets, 12 pillow slips; 191, 6 feather pillows; 209, 6 sheets.

G. I. A. to B. of L. E. 13, 7 sheets, 12 pillow slips, 2 comfortables; 19, 13 sheets; 52, 6 sheets; 36, 4 sheets, 2 pillow slips; 50, 6 sheets, 6 pillow slips; 76, 16 sheets, 1 towel; 204, 2 sheets; 230, 22 sheets, 24 pillow slips; 252, 6 sheets, 2 comfortables; 279, 2 sheets.

L. S. to B. of L. F. 4, 6 sheets, 12 pillow slips; 9, 4 sheets, 4 pillow slips; 44, 6 sheets, 12 pillow slips; 53, 6 sheets, 12 pillow slips; 65, 2 table spreads; 88, 12 sheets, 16 pillow slips; 91, 1 barrel groceries; 131, 2 sheets, 4 pillow slips; 165, 6 sheets, 25 pillow slips, 14 towels, 1 quilt.

No clue, 19 sheets, 1 table spread, and some canned fruit.

If the ladies would give the number of, and the order they belong to when sending donations to us, it would be more satisfactory to all.

Respectfully submitted,
MRS. T. B. WATSON,
Sec. and Treas. R. R. M. H.

Acknowledgments.

The following persons desire to acknowledge receipt of payment of claims, and to express their gratitude to the Brotherhood of Locomotive Firemen as an organization, and to the individual members for kindnesses and courtesies extended:

Mrs. Louisa Atherton, Mount Sherman, Ky.

Mary L. Pierce, South Williamsport, Penna.

Oliver P. Hays, Toledo, Ohio.

Mrs. Padden, Philadelphia, Penna.

E. S. Gilbert, Fort Scott, Kan.

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Balls and Entertainments.

Courteous invitations have been received at this office to attend the following balls and entertainments. The Grand Lodge force returns thanks and wish all an enjoyable and successful time.

Lodge 192—Seventh annual ball, at Germania Hall, Tacoma, Wash., Thursday evening, May 7, 1903.

Lodge 142—Twentieth anniversary reception, at Engineers' Hall, Broadway, Toledo, Ohio, Tuesday evening, May 19, 1903.

Lodge 438—Twelfth annual ball, at Keefe Hall, Cheyenne, Wyo., Friday evening, May 1, 1903.

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Addresses Wanted.

Requests have reached this office to publish notices inquiring for the present addresses or any information concerning the following persons. Information should be sent to the person specified in notice:

Robert Wilson Joncs—Formerly of Pittsburg, Penna. Member of the B. of L. F. Was firing out of Pittsburg several years ago. Last heard of in Tennessee. Any information as to his whereabouts will be gladly received by Robert Williams, 200 East Davis street, St. Louis, Mo., or his mother, Mrs. Anna Jones, 89 Bigelow street, Pittsburg, Penna.

Wm. F. Harkins—Is a member of Lodge 265, B. of L. F. Last letter received from him was from Greenville, Texas, in the fore part of February last.

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Any information as to his present whereabouts will be gladly received by M. E. Sturtevant, Secretary, 444 S. Ionia street, Grand Rapids, Mich.

A. F. Severs—He is, or was, a member of the B. of L. F. Last heard from he was working out of Pueblo on the Denver and Rio Grande Railroad, last December. Any information will be appreciated by R. F. Severs, Regina, Ky.

Robert M. Dorland—Will any one who sees this notice and who knows Robert M. Dorland, please tell him that his wife implores him to come home before it is too late? M. A. Dorland, Port Huron, Mich.

Thomas White—Last heard from about one year ago. Was working with bridge gang at some place in Iowa, on the C., M. & St. P. R. R. Anyone knowing his present whereabouts kindly address A. M. Snyder, Box 283, Waseca, Minn.

Alois Richards—Is a locomotive fireman and belongs, or did belong, to the B. of L. F. Have not heard from him for over one year. He last wrote from Kaukauna, Wis., and is supposed to have gone from there to Ashland, Wis. Any information as to his present address will be thankfully received by his mother, Mrs. Ida Richards, 420 Charlotte street, Escanaba, Mich.

Vernice J. Hawkins—Last heard from was firing on the C., R. I. & P. R. R., out of Dalhart, Texas. His weight is about 160 pounds, dark complected, and is about 5 feet 8 inches tall. Any information concerning him will be thankfully received by Mrs. W. H. Hawkins, 31 R. R. street, Elwood, Ind.

♣ ♣ ♣

Lost Traveling Cards, Etc.

This office has been notified of the loss of the following traveling cards, receipts, etc., and the request is made that all members be on the lookout for them. Should they be discovered in possession of persons not entitled to them, they should be retained and forwarded to owner or to the Secretary of the lodge which issued same:

Receipt of Haden Stark, of Lodge 14—Pocketbook and receipt for quarter ending June 30, 1903, were stolen either the last of March or the fore part of April. Owner is employed on the Chicago and Southeastern Railroad. Any information that will lead to the recovery of same will be gladly received by Haden Stark, Ladoga, Ind.

Traveling Card of F. T. Smith, of Lodge 200—On Thursday night, April 16, 1903, my coat, traveling card and other papers were stolen from me out of room at railroad boarding house at Murphysboro, Ill. All members are requested to look out for this card, and if taken up kindly return to A. S. Harrison, Secretary Lodge 200, B. of L. F., care of A. J. Lyon & Co., Meridian, Miss.

Traveling Card and Receipt of E. A. Albrecht, of Lodge 156—My traveling card and receipts, together with an order for the works, were stolen from me in Victoria, Mexico, April 14, 1903. The brothers are requested to look out for same, and if recovered kindly return to E. A. Albrecht, care of Mexican Central Railway, Monterey, Mexico.

Receipts of Charles Miller and L. J. Edmunds, and Receipts and Traveling Card of Leonard Mayhall, of Lodge 467—Receipts and traveling card of the brothers named, for the quarter ending June 30, 1903, have been lost. Should same be presented by others, kindly take up same and return to L. M. Beydler, Secretary, 512 S. Amo street, Albuquerque, New Mexico.

Receipt of J. S. Mackenzie, of Lodge 451—Receipt and order for works for quarter ending June 30, 1903, have been lost. If found kindly return same to J. S. Mackenzie, Peru, Ind., or to J. M. Richardson, Secretary, 9245 Jackson Park avenue, Chicago, Ill.

Receipt of C. A. Williams, of Lodge 280.—Receipt for quarter ending June 30, 1903, together with order for works, including a suit of clothes, several letters, constitution and by-laws of the Order, and a few other articles were stolen out of seat box on Frisco engine 114, at Hoxie, Ark., Sunday night, May 3d. Should above receipt be presented to any brother, he is requested to take up same and forward to my lodge. C. A. Williams, Thayer, Mo.

♣ ♣ ♣

Advertising.

The following advertisements appear in this month's issue of the Magazine. Our readers are especially urged to carefully look over the advertisements that we publish from month to month, many of which will be found very attractive and possessing considerable artistic merit. If any one should be in any way interested in anything that is advertised, kindly write to the advertiser, mentioning the Locomotive Firemen's Magazine. He would

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like to hear from you, and we want him to know that you saw his advertisement in our Magazine:

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Quarterly Dues Notice

OFFICE OF THE GRAND LODGE, B. OF L. F.
PEORIA, ILL., June 1, 1903.

To Members of Subordinate Lodges:

SIRS AND BROTHERS—You are hereby notified that the dues for the quarter ending September 30, 1903, are now payable and must be paid to the Collector of your Lodge on or before July 1, 1903. Said dues shall be such an amount as may be determined by the several Lodges, provided, in no case shall it be less than nine dollars ($9.00) for each member carrying a beneficiary certificate of three thousand dollars ($3,000), six dollars ($6.00) for each member carrying a beneficiary certificate of two thousand dollars ($2,000), four dollars and fifty cents ($4.50) for each member carrying a beneficiary certificate of fifteen hundred dollars ($1,500), three dollars and fifty cents ($3.50) for each member carrying a certificate of one thousand dollars ($1,000), and two dollars ($2.00) for each member who shall carry a certificate of five hundred dollars ($500). All beneficiary members now enrolled, and those admitted prior to August 1, 1903, are liable for the dues above referred to. All members initiated during the months of August and September will be exempt from the payment of dues for the said quarter, as provided in Section 172 of the Constitution. Beneficiary members initiated during the month of July are liable for the full amount of quarterly dues for the above quarter. All officers and members are earnestly requested to give the foregoing their careful and strict attention, and govern themselves accordingly. Any member failing or declining to make payment as above provided will be subject to the penalty of expulsion from the Order, as per Section 174 of the Constitution, said expulsion taking effect July 2, 1903.

Yours fraternally,

F. W. ARNOLD, G. S. and T. J. J. HANNAHAN, G. M.

Notice to Treasurers.

OFFICE OF THE GRAND LODGE, B. OF L. F.
PEORIA, ILL., June 1, 1903.

To the Treasurers of Subordinate Lodges:

SIRS AND BROTHERS—You are hereby notified, as provided in Section 62 of the Constitution, that no beneficiary assessment is required for the month of June, 1903, and that therefore none has been levied for said month.

Yours fraternally,

F. W. ARNOLD, G. S. and T. J. J. HANNAHAN, G. M.

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Notice to Secretaries.

OFFICE OF THE GRAND LODGE, B. OF L. F.
PEORIA, ILL., June 1, 1903.

To Secretaries of Subordinate Lodges:

SIRS AND BROTHERS—Pursuant to Section 174 of the Constitution, you are required to report to the Grand Lodge as expelled all members who fail to make payment of their Quarterly Dues or Protective Fund Assessments for the quarter ending September 30, 1903. The names of said members must be reported to you by the Collector of your Lodge not later than July 2d, and by you reported to the Grand Lodge, as per Section 174 of the Constitution, immediately thereafter. Failing to report the names of expelled members as herein provided, the Grand Lodge will hold subordinate Lodges liable for their assessments, as per Section 65 of the Constitution.

Yours fraternally,

F. W. ARNOLD, G. S. and T. J. J. HANNAHAN, G. M.

Protective Fund Assessment Notice No. 3.

OFFICE OF THE GRAND LODGE, B. OF L. F.
PEORIA, ILL., June 1, 1903.

To Members of Subordinate Lodges:

SIRS AND BROTHERS—You are hereby notified that Protective Fund Assessment No. 3 for the quarter ending September 30, 1903, is now payable and must be paid to the Collector of your Lodge on or before July 1, 1903. All beneficiary and non-beneficiary members now enrolled and those admitted prior to August 1, 1903, are liable for this assessment. All members initiated during the months of August and September are exempt from the payment of Protective Fund Assessment for the above quarter. Any assessable member failing or declining to make payment as above provided, will be subject to the penalty of expulsion, said expulsion taking effect July 2, 1903.

Yours fraternally,

F. W. ARNOLD, G. S. and T. J. J. HANNAHAN, G. M.

Notice to Secretaries.

OFFICE OF THE GRAND LODGE, B. OF L. F.
PEORIA, ILL., June 1, 1903.

To Secretaries of Subordinate Lodges:

SIRS AND BROTHERS—Pursuant to Section 174 of the Constitution, you are required to report to the Grand Lodge as expelled all members who fail to make payment of their Grand Dues for the year ending June 30, 1904. The names of said members must be reported to you by the Collector of your Lodge not later than July 2d, and by you reported to the Grand Lodge immediately thereafter. Failing to report the names of expelled members as herein provided, the Grand Lodge will hold subordinate Lodges liable for their Grand Dues, as per Section 65 of the Constitution.

Yours fraternally,

F. W. ARNOLD, G. S. and T. J. J. HANNAHAN, G. M.

Grand Dues Notice, 1903-1904, $2.00.

OFFICE OF THE GRAND LODGE, B. OF L. F.
PEORIA, ILL., June 1, 1903.

To Members of Subordinate Lodges:

SIRS AND BROTHERS—You are hereby notified that the amount of two dollars ($2.00) for Grand Dues for the year ending June 30, 1904, is now due and must be paid on or before July 1, 1903. Any member failing or refusing to make payment of his Grand Dues as above required, will stand expelled, said expulsion taking effect July 2d. Collectors are required to deliver their returns for Grand Dues, together with the proper statements, to the Treasurers of their Lodges not later than July 5th, and Treasurers are required to forward the same so as to reach the Grand Lodge not later than July 20th, as provided in Section 170 of the Constitution.

Yours fraternally,

F. W. ARNOLD, G. S. and T. J. J. HANNAHAN, G. M.

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Beneficiary Statement

OFFICE OF GRAND SECRETARY AND TREASURER,
PEORIA, ILL., May 1, 1903.

TO SUBORDINATE LODGES:

The following is a statement of receipts in the Beneficiary Department for the month of April, 1903:

RECEIPTS.

Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.	Lodge No.	Amount.
1	400 75	63	137 00	125	59 50	187	88 00	249	169 00	311	185 25	373		435	75 00	497	105 25	559	63 25
2	48 50	64	198 75	126	120 50	188	250 00	250	162 75	312	124 25	374	164 75	436	205 25	498	91 75	560	71 75
3	657 50	65	175 50	127		189	180 50	251	264 75	313	70 75	375	78 50	437	27 75	499	39 50	561	58 75
4		66	125 75	128	78 00	190	21 00	252	256 00	314	163 50	376	61 75	438	73 25	500	74 50	562	108 75
5	274 00	67	140 25	129	202 25	191	151 25	253	175 75	315	96 75	377	169 75	439	44 50	501	112 50	563	131 00
6	171 25	68	105 25	130	293 75	192	213 25	254	133 25	316	222 25	378	508 50	440	170 00	502	150 50	564	65 50
7	125 25	69	67 75	131	52 00	193	75 50	255	77 00	317	58 75	379	198 50	441	126 00	503	89 50	565	94 75
8	373 25	70	128 00	132	121 00	194	242 50	256	86 50	318	328 25	380	20 00	442	70 75	504	37 50	566	106 50
9	241 00	71	204 50	133	156 75	195	87 00	257	97 00	319	142 75	381	155 25	443	117 75	505	62 75	567	69 50
10	633 25	72	361 50	134	107 50	196	47 00	258		320	67 00	382	184 50	444	159 50	506	76 75	568	104 25
11	187 25	73	250 25	135	166 00	197	106 75	259		321		383	128 75	445	69 00	507	39 25	569	83 50
12	294 00	74	116 50	136		198		260	114 75	322	81 50	384	102 00	446		508	196 25	570	44 75
13	348 75	75	448 75	137	77 50	199		261	64 75	323	80 00	385	83 00	447		509	52 25	571	63 75
14	292 75	76	31 75	138	295 00	200	96 25	262	181 50	324	69 50	386	28 00	448	465 75	510	160 75	572	38 25
15	117 50	77	327 75	139	238 75	201	491 00	263	109 00	325	283 75	387		449	188 25	511	265 00	573	70 75
16	309 25	78		140	304 75	202	153 50	264	69 25	326	229 75	388	199 50	450	148 75	512	78 50	574	72 75
17	206 00	79	44 75	141	386 75	203	186 25	265	241 50	327	470 25	389	109 25	451	96 75	513	107 75	575	101 50
18	182 50	80	444 25	142	197 00	204	142 00	266	169 00	328	79 50	390	146 75	452		514	71 00	576	55 50
19	201 75	81	138 75	143	227 25	205	99 50	267	140 00	329		391	145 25	453		515	99 25	577	
20	40 25	82	218 25	144	26 25	206	51 00	268	34 50	330	182 00	392	162 50	454	146 75	516		578	78 25
21	178 00	83	182 25	145		207	204 25	269	162 00	331	74 00	393	128 00	455	92 75	517		579	50 75
22	67 50	84	149 00	146	335 00	208	73 25	270	116 75	332	234 75	394	33 75	456	92 00	518	35 50	580	47 50
23		85		147	139 00	209	162 25	271	94 00	333	249 25	395	82 25	457	124 75	519	107 50	581	53 25
24	185 75	86	188 50	148	136 00	210	59 75	272	49 50	334	195 00	396	126 75	458	37 75	520	39 75	582	122 00
25	306 00	87	96 75	149	691 25	211	193 25	273	157 25	335	50 50	397	45 00	459	58 00	521	76 50	583	45 25
26	204 25	88	128 25	150	206 00	212	121 50	274	76 50	336	87 00	398	75 75	460	71 75	522	154 25	584	49 50
27	190 75	89	70 00	151	87 75	213	175 75	275	268 00	337	217 75	399	49 00	461	99 50	523	77 50	585	88 50
28	161 75	90		152	159 50	214	225 75	276	159 00	338	154 00	400		462	123 75	524	16 50	586	41 50
29	89 75	91		153	113 25	215	270 00	277	93 50	339	44 25	401	223 25	463	130 00	525	66 25	587	104 25
30	158 75	92	103 25	154	104 75	216	82 00	278	23 50	340	117 75	402	72 00	464	91 50	526	.	588	34 00
31	92 25	93	120 75	155	124 00	217		279	66 25	341	187 75	403	45 50	465	249 75	527	95 75	589	60 75
32	163 25	94	262 50	156	186 00	218	210 00	280	217 25	342	173 00	404	68 75	466	123 00	528	99 50	590	136 50
33		95	36 50	157	69 75	219	223 00	281		343		405	146 75	467	63 25	529	.	591	37 00
34	240 00	96	145 75	158	75 00	220	448 50	282	24 75	344	156 00	406		468	24 00	530	235 00	592	45 00
35	144 00	97		159	147 50	221	167 25	283	102 75	345	154 25	407	102 50	469	61 00	531	81 25	593	33 00
36	131 50	98	212 50	160	118 75	222	178 00	284		346	17 00	408	157 25	470	145 00	532	66 00	594	96 25
37	311 50	99	519 50	161	25 00	223		285	283 25	347	88 00	409	112 75	471	36 25	533	66 50	595	53 50
38	94 50	100		162		224	47 00	286	155 25	348		410	190 00	472	189 50	534	.	596	
39	113 25	101	273 75	163	128 50	225	41 25	287	496 75	349	306 25	411	132 75	473	82 00	535	56 00	597	51 00
40	238 75	102	91 75	164	89 75	226	205 00	288	111 25	350	77 75	412	119 50	474	94 00	536	47 00	598	89 25
41		103	338 50	165	54 00	227	59 00	289	149 75	351	29 50	413	38 75	475	109 50	537	.	599	35 75
42	32 00	104	125 25	166	245 50	228	347 75	290	105 75	352	102 50	414	99 75	476	52 00	538	107 50	600	60 00
43	100 75	105	62 25	167	100 50	229	267 00	291	90 50	353	244 50	415	96 25	477	87 25	539	79 25	601	98 75
44	169 50	106	72 75	168	95 25	230	568 00	292	42 00	354	157 75	416	149 00	478	181 25	540	143 00	602	117 25
45	359 25	107	197 50	169	343 25	231	321 25	293	105 50	355	157 75	417	89 25	479	112 50	541	87 25	603	40 50
46	56 25	108	128 50	170	85 75	232	171 00	294	118 75	356	147 25	418	389 75	480	34 00	542		604	30 75
47		109	183 00	171	82 00	233	141 75	295	203 75	357	61 75	419		481	117 50	543	216 00	605	144 75
48	276 25	110	251 50	172	80 00	234	81 50	296		358	147 50	420	91 00	482		544		606	40 50
49	75 50	111	322 75	173	173 50	235	341 50	297	144 00	359	50 75	421	54 75	483	36 00	545	67 50	607	55 00
50	44 00	112	43 25	174	857 50	236	348 00	298	121 50	360	118 50	422	66 75	484	132 00	546	63 50	608	38 25
51	135 25	113	192 00	175	397 50	237	362 75	299	119 25	361	94 00	423	50 00	485	670 75	547	49 50	609	56 25
52	241 50	114	47 00	176	158 50	238	169 00	300		362	50 00	424	86 25	486	114 25	548	60 75	610	35 25
53	84 00	115	39 25	177	131 00	239		301	93 50	363	652 00	425	79 00	487		549	71 50	611	42 75
54	197 00	116	77 25	178		240	258 75	302	204 00	364	118 75	426	181 50	488	62 25	550	38 50	612	71 50
55	48 00	117	104 75	179	27 75	241	247 50	303	90 75	365	62 00	427	76 50	489	118 25	551	101 75	613	52 00
56	105 00	118	53 00	180	12 00	242	134 00	304	154 00	366	58 75	428	66 25	490	159 25	552	96 50	614	158 25
57	489 50	119	89 00	181	32 25	243	93 25	305	72 50	367	105 25	429	113 75	491	37 50	553	52 00	615	124 75
58	110 00	120	159 25	182	222 50	244	132 75	306	213 75	368	102 00	430		492		554	56 25	616	43 00
59	352 75	121	299 75	183	179 75	245	118 25	307	142 50	369	108 25	431	114 25	493	94 00	555	36 00	617	37 00
60	258 50	122	49 50	184		246		308	56 00	370	21 00	432	203 00	494	99 25	556		618	27 00
61	121 25	123	181 50	185	81 75	247	263 50	309	311 00	371	116 00	433	62 25	495		557		619	50 00
62	91 75	124	160 75	186	14 75	248	202 50	310	182 25	372	117 50	434		496	45 25	558	114 25	620	36 00

Received during month of April.....$78,940.50

Disbursed during month of April, account Beneficiary Claims { 36 $1,500 $54,000 / 0 1,000 / 2 500 1,000 }$55,000.00

Respectfully submitted,

G. S. and T.

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In Memoriam.

Every sister of the Ladies' Society sends a message of heartfelt sympathy to Bro. John J. Hannahan in his great bereavement. Wherever there is a member of the Brotherhood, wherever there is a sister of the Ladies' Society, there is an aching heart, there are tear-stained eyes, there are prayers offered that God will comfort send to our Grand Master, whose broken heart beats so faithfully for all of us.

Our dear Sister Hannahan has left us. She, whose sweet quiet ways meant so much more than words, has passed into the great Beyond.

Only a few short weeks ago we met and parted—never dreaming that we would meet no more on earth.

She was a true friend and many will miss her kind words and loving deeds of charity. All these are recorded in the great book on High.

Let us follow her examples, my sisters, then we will not fear death. We, too, will be ready for the call that will sooner or later come to all of us.

She has entered into rest and peace.

GEORGIE M. SARGENT.

I wish to pay a tribute to one who, for two short years it has been my privilege to call friend and sister, Mrs. John J. Hannahan, who has passed to peace on the other side.

A grand, strong, true heart, an unselfish life, a triumphant love, a perfect trust in the Divine strength and a gentleness that was of Heaven, were all enshrined in the frail form of this matchless Madonna.

Ah! how we prayed to keep her, but God answered, "No, angel voices call her, you must let her go."

JOSEPHINE C. WATTS.

The Best that You Have.

There are loyal hearts, there are spirits brave,
There are souls that are pure and true;
Then give to the world the best that you have,
And the best will come back to you.

Give love, and love to your life will flow,
A strength in your inmost need;
Have faith, and a score of hearts will show
Their faith in your word and deed.

For life is the mirror of king and slave,
'Tis just what we are and do;
Then give to the world the best that you have,
And the best will come back to you.

—The Bee Hive.

♣ ♣ ♣

The sisters of the Ladies' Society extend sincere sympathy to the husband, parents and friends of Sister Minnie Buhl, of Fort Orange Lodge 113, who departed from this life April 9, 1903.

Through the twinkling stars of night,
Watching her darling asleep,
Her spirit, so holy, is shedding its light,
An unbroken vigil that spirit will keep.

F. C.

♣ ♣ ♣

By the River.

The river is dark, but the lights abide—
O soul! on the beautiful other side;
The lights that shine o'er the river's breast
From the beautiful shore where the bells ring "Rest!"
Rest for the weary over the tide
On the beautiful shore on the other side.

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It is only a handclasp—a sad "good-night"—
A step in the darkness—then dreams and light!
A fading away of the world's bright skies,
Then the light of heaven on the dreaming eyes.
Rest for the weary over the tide
On the shore that shines from the other side.

Why should we shiver, why should we shrink
With a backward look from the river's brink?
Did the red, sharp thorns make earth so blest
We never sighed for the dreams and rest?
Longed for the bells o'er the river's tide,
Sweet from the shore on the other side?

O, the river is dark, but the lights abide;
If only in dreams, on the other side!
We yield the crosses—we cast the cares—
Loveless longings—unanswered prayers,
For the dark or the light o'er the river's tide—
We pass to peace on the other side!
—Atlanta Constitution.

♣ ♣ ♣

Notes.

The pin sent out to the lodges of the Ladies' Society, by the National Seal and Stamp Works, Baltimore, Md., is not our official pin. It is not the one adopted by the Des Moines Convention.

In Faith and Hope the world will disagree; but all mankind's concern is Charity.

The first annual meeting of the Ladies' Societies of the State of Illinois will be held in Peoria, Ill., about the first of October. The exact date will be published in these columns later. The sisters of Hazel Lodge, who are well qualified to make this meeting productive of much good, will give to it their best efforts. They bespeak the co-operation of every sister in Illinois.

"She said she'd love him and obey,
But ere a week had flown
He had to gain consent from her,
When he went out alone."

All along the line the brothers are beginning to notice us. Good!
Right this way, brothers,
Old wives made young,
Dull wives polished up,
Lazy wives spurred on,
Meddling wives given work,
Women, bright and young, assured against the rust of inaction, etc.

Here are the titles of some books that are all right. 'Twill pay you to read them: "The Virginian," "Down the Line with John Henry," "It's Up To You," "Mrs. Wiggs of the Cabbage Patch," "Lovey Mary," "Emmy Lou."

♣ ♣ ♣

Who Leads?

Below is given the membership of the ten largest lodges in the Ladies' Society, as reported about April 15, 1903. Will the secretaries of these lodges, or others who may be entitled to a place among the "big ten," kindly inform me of any change in their membership?

The names of the ten leaders will be published each month until further notice. Close competitors are 113 and 60, with a membership of 50 each. 95 and 140 are a tie. Each has 44 members.

1. No. 142, Empire, Buffalo, N. Y. 127
2. No. 70, Holly, Buffalo, N. Y... 109
3. No. 58, Sisters of 99, Rochester, N. Y 78
4. No. 59, Easter Lily, Pt. Jervis, N. Y 63
5. No. 146, Virginia, Chicago, Ill. 61
6. No. 16, Headlight, Boone, Ia.. 60
7. No. 3, Hazel, Peoria, Ill..... 57
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Pay for Collectors and Secretaries.

It is time we were waking up to the fact that the collector and secretary are deserving and faithful friends.

How frequently we hear tardy members say: "The collector did not call round for my dues and assessment." Is the collector's compensation large enough to permit of her leaving her own employment to "call around?"

Many lodges do not pay their collectors at all. This is rank injustice; and the wonder is that it is possible for them to find a member who will accept the office. A lodge of forty members should pay their collector at least $10 a year. Then she will be willing to visit members personally who are liable to suspension. What think you of a plan to fine all delinquents, using the fund thus created to advance the current assessments of tardy members? Let me hear from some of you.

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Whatever other plan you adopt, do *not* ask that faithful, long suffering collector to take money from her own purse to pay dues or assessments for that "lakadazial," "slow-paying," "call-around" member.

To insure successful meetings the secretary should always be in her place. No other member can properly perform her duties during a single meeting. To do this she must often neglect other duties, and the lodge may expect her to do so, *if they pay her for it.* One who has never been a secretary does not realize the amount of clerical work connected with the office. Inquire into it. And remember, the laborer is worthy of his hire.

* * *

Election.

The feverish unrest for official honors, so detrimental to harmony, is upon us. Election time draws near.

Right now is the time to plan your campaign for next year. Is your lodge stronger than it was a year ago? Is it doing better work? Has your membership increased? If not, there is something wrong, some place. If the wrong lies in the inefficiency of your officers, the remedy is at hand. "By their fruits ye shall know them." Have they realized that their positions brought work and care? If they have not, allow them to enjoy the comforts and leisure of high privates and put loyal sisters on guard.

* * *

Our Grand Counselor Will Go to Hawaii.

Accompanied by his secretary, Bro. Donehue, our Grand Counselor, Commissioner General Sargent, will make a long trip. A Washington paper prints the following:

F. P. Sargent, Commissioner General of Immigration, will leave Washington this afternoon for an extended tour in connection with immigration affairs. He will go to New Orleans and along the Mexican border to Los Angeles. He will talk with immigrant inspectors and Chinese inspectors all along the line. After going to San Francisco he will leave for Hawaii, where he will pass upon plans for the new $30,000 immigrant station to be erected in Honolulu. On his way back he will go to the Puget Sound country and cities on the Northern Pacific coast, proceeding along the Canadian border to New York. A personal inspection of immigration affairs will be made by Mr. Sargent.

First Annual Ball of L. S. 144.

For the first time in the history of the city has a ball been given which was under the exclusive management of ladies, even the music being furnished by a lady orchestra, and not a man in any way connected with the management of the event. This occurred in this city Tuesday night.

The members of the Ladies' Auxiliary to the Brotherhood of Locomotive Firemen have the honor of being the first to introduce and demonstrate that a man is not a necessary evil in the management of a successful social function in this city. These ladies conceived the idea of giving a ball and went to work to perfect arrangements which terminated Tuesday evening in one of the most pleasant and successful balls ever given in this city. One gentleman, who has attended every ball given in this city for the past six years, was heard to remark that Tuesday night's ball was the best managed and most pleasant one he ever attended.

The ball room was well crowded when the grand march was taken up at 9:30, and from that hour until 4:30 in the morning the time was consumed in the carrying out of the well-arranged program.

At 11 o'clock supper was served by the ladies on the stage of the opera house.

Everything was done to make the time pleasant for those who were fortunate to attend, and the efforts were not in vain. These ladies will make this ball an annual affair, and in the future The Herald would recommend the members of the Ladies' Auxiliary to those who wish pointers as to the management of successful entertainments, especially balls.—The Herald, Yoakum, Tex.

* * *

The Union Label.

Sisters of the Ladies' Society, for all connected with your order there is plenty of work to do.

Your first thought is to render assistance and give encouragement to the B. of L. F. Perhaps a few will frown upon your efforts if they are directed along other lines, but countless numbers will applaud.

Women are working in stores, factories and offices, doing men's work and getting less pay, for no other reason than this—they are women. Why this discrimination?

As far as I am concerned, I shall speak out for what is right and just for *all* who toil; and say, equal work, equal pay for doing it. And I claim it is a part of your

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duty to do the same. Try it and be assured good effects will soon follow.

Some time ago, while in Lexington, Ky., I read an article in one of the daily papers commenting upon the fact that many young office girls were renting one room and pooling their earnings, $2.50 a week, in order to live. We applaud the strong, noble girl who does right while working under such conditions; and human heart can not fail to pity the weaker one who leaves the straight and narrow path; but the employer, who pays so little and expects so much, deserves the scorn and condemnation of all right thinking people.

In Chicago, women in the tenement house districts are making little boys' knee pants for 25c a dozen. Just think of it. When you go to the counter looking for bargains, it is more than likely that the cheap article sold you was made by some woman for almost nothing. Perhaps that woman is the sole support of an invalid parent or perhaps she is a mother, compelled to make a living for her children.

I am aware that the Ladies' Society can not revolutionize the industrial world; but they can help overcome some of its evil conditions.

As it is the duty of the members of the Brotherhood to purchase union goods, so it is the duty of the sisters of the Ladies' Society to ask for the union label on all goods that they buy.

The union label is a guarantee that the articles bearing it were made in places free from disease and by union labor that was well paid. CHAS. MAIER.

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Letters from Friends.

FROM L. S. 158—(*Anna Mehan, Clinton, Ill.*) Better late than never; but better never late. However, without burdening you with excuses, I will try to write a few lines to let our sister societies know that the members of Castle Rest Lodge are neither dead nor sleeping.

Our little society is moving on very smoothly and gradually growing. We are expecting to initiate a number of candidates soon and look forward to the event with great pleasure.

Our auxiliary has proven to be a source of great enjoyment to all and we are always glad to welcome new sisters into our happy circle.

We have held quite a number of joint meetings. The boys seemed very much pleased with them and are anxious to have us meet again with them. This we will do, just as often as we can. We are proud of our brothers in 176. There are none finer in the Brotherhood. We appreciate the protection and brotherly advice given us by them.

Monday night, April 6th, we had the pleasure of having our Grand President, Georgie M. Sargent, with us. The evening was spent with cards, music and dancing. Refreshments were served, after which the brothers and sisters listened to a very pleasant and instructive talk given by our Grand President. Tuesday evening, April 7th, was our regular meeting night and Sister Sargent spoke to the sisters. Every sister will remember and be benefited by the advice she gave them.

Our dear Grand President is ever kind and considerate. No doubt she is often weary with questions asked over and over again, yet no one ever hears her complain. Her answers are most courteous and satisfactory. Fortunate, indeed, are we in having for our leader a true and loyal woman whose whole life is wrapped up in our organization. Sisters, give her your heartiest support and rest assured while Sister Sargent is Grand President, we will have intelligence and judgment at the head of our society.

This is my first letter for the Magazine and I fear it is rather long, so I will close for this time, as I intend to write again.

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FROM L. S. 130—(*President, Bucyrus, O.*) March 14th the sisters of Harmony Lodge celebrated their third anniversary. About one hundred persons were present. Among them were members of the Brotherhood and their families, also a number of sisters of Galion, who came over on the 7:30 car. Cards and music furnished entertainment during the evening. Refreshments were served. The guests from Galion were compelled to leave on the last car. As it was drawing close to the midnight hour, all departed, thanking the members of Harmony Lodge for a very pleasant evening and wishing them many more such pleasant birthdays.

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FROM L. S. 79—(*Member, Murphysboro, Ill.*) We celebrated our second anniversary March 7th with a progressive euchre party and a banquet. Each one of our sixteen members takes an active part in making our meetings interesting. I am sure if the firemen's wives, who do not belong to our order, knew of the friendship that exists among its members and the good derived therefrom they would not hesitate to join us.

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We are organized to assist the Brotherhood of Locomotive Firemen, to promote sociability, to render aid and comfort in sickness and death and to be charitable in time of need.

Brothers, urge your wives to join us. Neither you nor they will ever regret it.

We have socials once a month, from which we realize a neat little sum for our banquet fund. We have also adopted the penny march.

We would appreciate a visit from one of our Grand Officers. We know that it would help us in our work.

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FROM L. S. 12—(*Dora Tongate, New Franklin, Mo.*) No. 12 has been organized twenty-one months. We have a membership of 12. We had 18 members. Some of the brothers were promoted to the right hand side. It being compulsory to leave the B. of L. F. to join the B. of L. E., they did so and the sisters felt called upon to join the B. of L. E. auxiliary. This rather crippled No. 12, but we will recover. We gave our first ball this winter, clearing $29.50. We gave an ice-cream social April 21, at the home of Bro. and Sister Burch, for the benefit of the Railroad Home, and cleared $17. We give a tea once a month. We have had a joint meeting, which was very much enjoyed, especially by our bachelor brothers.

Our Grand President visited us once. We were some frightened, but soon recovered, finding her a lovely woman in the right place. Hope she will favor us again.

Kind wishes for the different lodges and those in whose interests we labor.

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FROM L. S. 90—(*Fern Buford, Kansas City, Kan.*) One bright pleasant evening in April, a mysterious crowd of women and children, each one carrying a basket of good things to eat, wended their way through the streets of Riverview, toward Nation Hall, where the lodge of the Brotherhood of Locomotive Firemen had met to discuss the conditions of some grave situation.

This strange procession greatly alarmed this body of firemen, with rings at the door of their anteroom. The "candidate" probably paled, not knowing what next to expect during his exciting and nerve-trying ordeal, initiation.

But we members of No. 90, for we were "it" that was acting so strangely, feel that he should be very grateful to us, for when Bro. Harris, the Master of 330—who came to the door himself to determine the cause of all the commotion—recognized us, he gave the glad hand and said "Come in and welcome, too. Make yourselves at home in this room, we'll hurry the secret work."

Confidentially, I think the sight of so many baskets, etc., and a knowledge of the fact that the candidate had protectors near ready to rush to his assistance at the first opportunity, determined Bro. Harris to do naught but "be good."

After the tables had been prepared by the sisters and while waiting for the coffee to boil we had a social time with music by the Misses Makinson.

The couples for supper were arranged by cards with numbers on them. Two embryo firemen passed them around. No one knew who was to be his or her partner until the numbers were compared. A grand march was formed, the numbers coming in rotation. We marched to lively music into the banquet room where all did justice to the refreshments. It was certainly a pleasant evening. All wended their way home in the "wee sma' hours," but not until the sisters had received a cordial invitation to come again soon.

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FROM L. S. 125—(*Mrs. Minnie Chapman, Jackson, Mich.*) Charity Lodge now has 52 members and all meetings are well attended. We expect to initiate a number this month.

The 21st of April the B. of L. F. gave their tenth annual party. It certainly was both a social and financial success. There were about four hundred present. The Ladies' Society furnished the supper, which I can assure you was fine. Much credit is due the committete.

The ladies have given progressive pedro parties all winter every two weeks for the B. of L. F. and families. Three sisters entertained together at one of their houses. These parties were always well attended and promoted friendship and sociability.

Our members all take great interest in our lodge. If any of our readers could at any time attend our meetings or our social gatherings, they would find as jolly and as sociable a crowd as ever extended the right hand of fellowship. Any sister, visiting our city, can be assured of a hearty welcome from any and all sisters.

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FROM L. S. 53—(*Edna Ashley, Trinidad, Col.*) Although there are not many letters in the Magazine from No. 53, we are very much alive. We gave a grand ball and doll-contest April 20th, clearing, in all, $225. We feel justly proud of our

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success. The doll alone brought us $170. At present we are only a small lodge of 21 members; but our membership is increasing all the time and we hope before long to be as large and as flourishing a lodge as there is in the State.

(Realizing that societies are often at a loss for some new form of entertainment, I wrote and asked Sister Ashley to describe the doll-contest. This she very kindly did, so clearly and concisely, that I publish it in her own words.—Ed.)

First, we got a lovely doll thirty inches high and large in proportion, with lovely curls, and dressed her to represent an up-to-date young lady, in pale green silk with a train and a large white hat trimmed with pink roses. Then we selected our little girls to run in contest. Only one of our lodge ladies wished to let her little girl run, so we selected three, outside of the lodge and one in (generally two are selected in the lodge and one outside). Each little girl tried to see who would get the largest number of votes. They were out canvassing a month or more. At the dance we gave a half-hour (from 10 to 10:30) for voting. The two girls that had the largest number of votes were ahead to start the contest. Each side tried to out-vote the other. The contetst became very spirited, and when it closed about 1,700 votes had been cast. Each vote cost 10 cents. Anyone could buy as many votes as they pleased, for either party, and the dimes soon amounted to dollars. Then, of course, we had consolation dolls for the ones that were beaten. These dolls, twelve or fourteen inches long, dressed in long white baby clothes and caps, looked very sweet, indeed, and truly furnished consolation for the little ones who failed to win the beautiful young lady doll.

FROM L. S. 83—(*Mrs. J. Turner, Oneonta, N. Y.*) I am pleased to say that Autumn Lodge is going along very nicely. Our attendance at meetings is not very large, owing to the fact that so many of our brothers have located at other places along the road. We frequently find that it is uphill work and sometimes very discouraging for those that do attend. I think, sometimes, that more interest might be manifested in our existence by our brothers. A few words from them to their wives, their daughters or their sisters might induce them to join us. We have some good workers and some that attend regularly. I must confess to feeling a little pride, when I say I have not missed a meeting since I have been in the chair.

During the winter we made a quilt. Each sister would take it in turn and the brothers would be invited to tea and to spend the evening. I can assure you, we have had some very pleasant times.

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FROM L. S. 165—(*Anon, Commerce, Tex.*) Our regular meetings are held the afternoons of the second and fourth Mondays of the month, in the B. of L. F. hall, the free use of which is given us by the boys of Dixie Lodge 548. The sisters appreciate the many courtesies shown them by their brothers, also the fresh bucket of water so kindly brought them by Bro. Heath.

Sometimes we are a little discouraged because our meetings are not better attended, but we have a faithful few who "keep the ball rolling." I fear the "stay at home" sisters do not know what good times we have.

Wake up, sisters, and come out. You are always welcome.

Official

Grand Dues Notice.

GRAND LODGE LADIES' SOCIETY
OF THE
BROTHERHOOD OF LOCOMOTIVE FIREMEN.
Office of Grand Secretary
and Treasurer.
BOONE, IOWA, June 1, 1903.

To all Subordinate Lodges:

Sisters—Pursuant to the requirements of the laws as enacted by the Sixth Biennial Convention, you are hereby notified that the amount of fifty (50) cents for Grand Dues, for the six months ending December 31, 1903, will be due and payable by all members whose names appear upon the rolls of membership July 1, 1903, to the Collector of the lodge, on or before July 1, 1903. The Collector is required to deliver the amount thus collected, together with the proper statements, to the Treasurer of her lodge not later than July 5, 1903, and the Treasurer is required to forward the same so as to reach the office of the Grand Secretary and Treasurer not later than July 10, 1903. Fraternally yours,

[SEAL.] MARY E. DUBOIS,
Grand Secretary and Treasurer.

Approved:
G. M. SARGENT,
Grand President.

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Death Report.

Minnie Buhl—Lodge 113; died April 9, 1903; cause, pleurisy. Amount of insurance, $200.

Mary E. Gilner—Lodge 70; died April 12, 1903: cause, cancer of stomach. Amount of insurance, $200.

Alice Meech—Lodge 77; died April 16, 1903; cause, gastro enteritis. Amount of insurance, $200.

Daisy D. Springer—Lodge 96; died April 10, 1903; cause, complications arising from childbirth. Amount of insurance, $200.

Lenora Anderson—Lodge 174; died March 24, 1903; cause, sciatic rheumatism. Amount of insurance, $200.

Emma Varley—Lodge 142; died April 30, 1903; cause, carcinoma of uterus. Amount of insurance, $200.

The Old-Fashioned Boy.

Oh, for a glimpse of a natural boy—
A boy with a freckled face,
With forehead white 'neath tangled hair
And limbs devoid of grace.

Whose feet toe in, while his elbows flare;
Whose knees are patched all ways;
Who turns as red as a lobster when
You give him a word of praise.

A boy who's born with an appetite,
Who seeks the pantry shelf
To eat his "piece" with a sounding smack—
Who isn't gone on himself.

A "Robinson Crusoe" reading boy,
Whose pockets bulge with trash;
Who knows the use of rod and gun,
And where the brook trout splash.

It's true he'll sit in the easiest chair,
With his hat on his tousled head;
That his hands and feet are everywhere,
For youth must have room to spread.

But he doesn't dub his father "old man,"
Nor deny his mother's call,
Nor ridicule what his elders say,
Or think that he knows it all.

A rough and wholesome natural boy
Of a good, old-fashioned clay;
God bless him, if he's still on earth,
For he'll make a man some day.

—Detroit Free Press.

Keep Out of the Past.

Keep out of the past, for its highways
Are dark with malarial gloom;
Its gardens are sere and its forests are drear,
And everywhere molders a tomb.
Who seeks to regain its lost pleasures
Finds only a rose turned to dust;
And its storehouse of wonderful treasures
Is covered and coated with rust.

Keep out of the past—it is haunted;
He who in its avenues gropes
Shall find there a ghost of a joy prized the most,
And a skeleton throng of dead hopes.
In place of its beautiful rivers
Are pools that are stagnant with slime;
And these graves, gleaming in a phosphoric light,
Hide dreams that were slain in their prime.

Keep out of the past—it is lonely
And barren and bleak to the view;
Its fires have grown cold, and its stories are old;
Turn, turn to the present, the new.
Today leads you up to the hilltops
That are kissed by the radiant sun;
Today shows no tomb, life's hopes are in bloom,
And today holds a prize to be won.

—Ella Wheeler Wilcox.

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